2016 THE KAUFFMAN INDEX

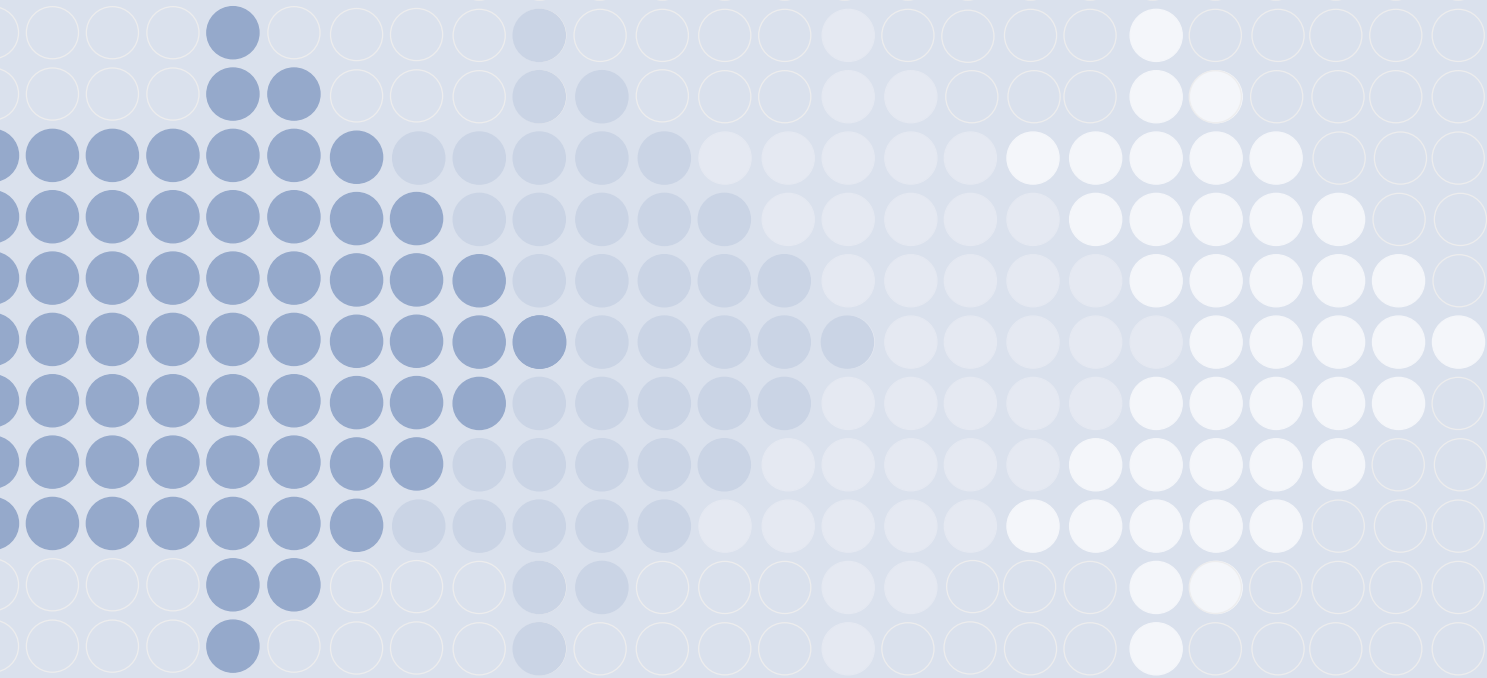
startup activity

NATIONAL TRENDS

Robert W. Fairlie
E.J. Reedy
Arnobio Morelix
Joshua Russell

AUGUST 2016

Ewing Marion
KAUFFMAN
Foundation



Explore the interactive data at
www.kauffmanindex.org

The authors would like to thank Barb Pruitt, Chris Jackson, Chris Newton, Dane Stangler, Keith Mays, and Lacey Graverson for their feedback, support, and advice.

TABLE OF CONTENTS

Foreword

By David Vitter
U.S. Senator, Louisiana

America has long-been known around the world as a nation of dreamers, of risk takers, of hard workers—nation of entrepreneurs. From the breakneck expansion of industry and railroads seen in the 19th century to the more recent advent of the internet and its ability to empower small groups of individuals to have a global impact, it has always been the brave, determined men and women of our country, willing to stake their livelihoods on an idea by starting a business, that have driven our economy and ensured our prosperity. Against odds that would see a quarter of their businesses fail in their first year, and nearly half within three years, American entrepreneurs have persisted, with startups historically outpacing the rate of businesses that fail, even during recessions. This entrepreneurial spirit has resulted in small businesses becoming the lynchpin of our economy, accounting for half of all private-sector employment and nearly two-thirds of net new private-sector jobs.

The economic dynamism the United States has historically been known for not only supports job creation by entrepreneurs and the startups they launch, but also drives increases in productivity, innovation, and competition throughout our economy. As policymakers and leaders, we have a duty in ensuring that these entrepreneurs have the resources and support they need to make the leap of starting and growing their businesses, creating new jobs in the process.

As the 2016 Kauffman Index of Startup Activity shows, we have seen a heartening increase in the level of startup activity in the United States, despite the numerous headwinds entrepreneurs face. While these recent trends are certainly good news, longer term trends are still troubling. The levels of startup activity in the nation are still below the pre-recession peak, and entrepreneurship continues its long-term decline compared to previous decades.

As Chairman of the Senate Small Business Committee, I am encouraged by the recent uptick, and proud of the work we have done on a bipartisan basis to address some of the biggest issues small businesses face. We have passed legislation on a variety of issues that have had a real impact on entrepreneurs, from access to capital, technical assistance and training, research and development incentives, support for veterans who are starting businesses, to regulatory reforms.

More important than the legislation we have passed, however, is our renewed focus on the long-neglected issues facing entrepreneurs. I've made it a priority to hold hearings and raise awareness on what is happening in the ever-changing startup world and have seen a remarkable level of participation by my fellow Senators, both Republican and Democrat, who recognize the importance of supporting America's entrepreneurs through sound policy.

The Kauffman Foundation's work has long-influenced and informed our legislative agenda, and the 2016 Startup Index is an invaluable source of information on what is working and what isn't. We've put this knowledge to good use, pushing to make both the committee and the U.S. Small Business Administration (SBA) more responsive and less beholden to the status quo. As we continue our work, we will focus on three main areas: access to capital, innovation, and regulatory reform.

For a small business, capital is king. It affects every aspect of entrepreneurship, from launch to long-term growth, and everything in between. I have heard directly from entrepreneurs and those assisting them, not only in my own state but across the country, that it is the limiting factor for entrepreneurs in making the leap with their businesses from the start-up to scale-up phase. It is during this transition that we see some of the strongest and most important growth in a business' lifecycle. As it grows, so do jobs and the economy; but a business cannot grow if it doesn't have the working capital necessary to do so.

This lack of capital can also have disastrous effects on communities, as those that don't already have a vibrant entrepreneurial ecosystem experience difficulty in attracting new capital and spurring growth. Disadvantaged communities, in particular,

(continued)

can be trapped in an economic malaise, as the lack of available capital accentuates the already slow growth many of them experience, and makes it even harder for local entrepreneurs to address local needs and build the local support networks that are so vital to the entrepreneurs that follow.

That is why I have worked to expand the SBA's flagship 7(a) loan program and hope to pass into law, with the help of my colleagues in the Senate, my bipartisan legislation that strengthens this vital source of capital for American entrepreneurs, whether they're in the biggest cities or the smallest community. This program has seen incredible growth over the last five years and with the reforms my bill contains, along with the funding discretion it provides the SBA Administrator, the program will be placed on sound footing to continue providing much needed capital to entrepreneurs.

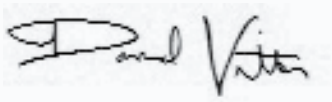
My second priority is to bolster innovation within the economy and make sure that small firms remain the leaders, as small firms have historically produced sixteen times as many patents per employee as large firms. Part of this includes enhancing and making the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs permanent. I've introduced bipartisan legislation to bolster this program because I have seen, firsthand, the effectiveness of these programs in supporting and commercializing innovations that lead directly to the creation of new jobs. As technology continues to permeate every facet of our lives and our economy, we must position Americans to continue leading in innovation—because if we don't do it, someone else in the world will.

It is just this kind of disruptive innovation that we have excelled at and relied upon in the past to drive our economic growth, as new, more efficient and effective ideas displace the old. Such innovation relies on entrepreneurs to commercialize the outcomes of their research and development and turn ideas into business ventures. It is this driving principle that has animated the Committee's central theme for the past year and a half and my final priority as Chairman— regulatory reform.

In today's world, you can order a taxi, make payments, and order food or products in seconds with your phone—yet government bureaucracy at every level has created layer after layer of obstructions and unnecessary paperwork. That's why I hear, time and again, concerns from small business owners over the time and resources required to navigate an increasingly complicated regulatory environment, contending with regulation after regulation by federal, state, and local authorities. While there are many laudable and necessary regulations on the books, it is the accumulation of increasing regulatory action at every level that is responsible, at least in part, for the long-term decline in entrepreneurship. In an era when nearly a third of private sector jobs require some form of government licensure and one of the most effective strategies in helping entrepreneurs succeed is providing support to them when dealing with the government, we should be turning a critical eye to what regulations are in place, and eliminating those that serve only as demoralizing impediments to entrepreneurs doing what they do best: creating jobs, growing our economy, and keeping the American Dream alive.

Startup activity is key to the economic health and prosperity of America. Understanding what is happening to our country's startups and entrepreneurs is essential to any policymaker hoping to accelerate and expand on the recent progress we have seen in entrepreneurial activity. The Kauffman Foundation, through the Kauffman Index of Startup Activity and its many valuable initiatives, not only provides an important source of information for all of us who care about expanding entrepreneurship in America, but also puts into practice what their research tells us, as we work to help to build the businesses of today and the bedrock of tomorrow's economy.

At the end of the day, while capital is vital, it takes more than money to start a business. It takes an entrepreneur with the fortitude and dedication to act on their idea. As a policymaker, it is my duty to ensure that we do all that we can to support entrepreneurs and create an environment where they can succeed. The work by the Kauffman Foundation and my own experience as Chairman have left me with the firm belief that the issues we face in accomplishing these goals are manageable ones with practicable solutions—and that there is no reason for inaction on our part.



About the Kauffman Index of Entrepreneurship Series

The Kauffman Index of Entrepreneurship series is an umbrella of annual reports that measures U.S. entrepreneurship across national, state, and metro levels. Rather than focusing on inputs, the Kauffman Index focuses primarily on entrepreneurial outputs—the actual results of entrepreneurial activity, such as new companies, business density, and growth rates. The Kauffman Index series consists of three in-depth studies—Startup Activity, Main Street Entrepreneurship, and Growth Entrepreneurship.

The Kauffman Index of Startup Activity is an early indicator of the beginnings of entrepreneurship in the United States, focusing on new business creation, market opportunity, and startup density. The Kauffman Index of Main Street Entrepreneurship measures business ownership and density of established, local small businesses. The Kauffman Index of Growth Entrepreneurship focuses on the growth of entrepreneurial businesses, as measured by growth in both revenue and employment.

In this release, we present the Kauffman Index of Startup Activity, a comprehensive indicator of new business creation in the United States. The Startup Activity Index integrates several high-quality sources of timely entrepreneurship information into one composite indicator, relying on three components to measure startup activity:

- Rate of New Entrepreneurs
- Opportunity Share of New Entrepreneurs
- Startup Density

The Kauffman Index of Entrepreneurship series represents extensive research and attempts to present a balanced perspective on how to measure entrepreneurship. However, because we recognize that entrepreneurship is a complex phenomenon, we expect to further revise and enhance the Index in the coming years.

The specific indicators from each report help tell America's entrepreneurship story. National, state, and local leaders can access all the reports, along with the data relevant to their locales, at www.kauffmanindex.org.

Startup Activity Executive Summary

The Kauffman Index of Startup Activity is a comprehensive indicator of new business creation in the United States, integrating several high-quality sources of timely entrepreneurship information into one composite indicator of startup activity. The Index captures business activity in all industries and is based on both a nationally representative sample size of more than a half million observations each year and on the universe of all employer businesses in the United States—which covers approximately five million companies. This allows us to look at both entrepreneurs and the startups they create.

This report presents trends in startup activity over the past two decades for the United States. Two upcoming reports look at these same trends in all fifty states and the forty largest U.S. metropolitan areas. Trends in startup activity also are reported at the national level for specific demographic groups for some of the Index components, when available.

National Trends in Startup Activity

Startup Activity Index

- The Startup Activity Index rose to 0.38 in 2016—continuing an upward trend started in 2015. After falling with the recession and reaching its lowest point in the last twenty years just two years ago, startup activity rebounded, going up for the second year in a row.
- Despite the recent positive trend, startup activity is still below the levels seen before the Great Recession drop, and startups with employees are still on a long-term decline compared to historical levels—from the 1970s to now.

Rate of New Entrepreneurs

- Looking inside the components of the Startup Activity Index, the Rate of New Entrepreneurs in the United States increased from 310 out of 100,000 adults in the 2015 Startup Activity Index to 330 out of 100,000 adults in the 2016 Index. Furthermore, the Rate of New Entrepreneurs has increased about 15 percent in two years; compared to the 2014 Startup Activity Index, when the rate was 280 out of 100,000 adults.
- The Rate of New Entrepreneurs of 0.33 percent translates into approximately 550,000 new business owners each month during the year.
- The increase in the Rate of New Entrepreneurs last year was driven by a large increase among women, going from 0.22 percent to 0.26 percent.

Two years ago the Startup Activity Index was at its lowest point in the last twenty years. Today, it has gone up two years in a row, reaching close to the peak before the Great Recession drop.

Opportunity Share of New Entrepreneurs

- The Opportunity Share of New Entrepreneurs, the proportion of new entrepreneurs driven primarily by "opportunity" rather than "necessity"—necessity entrepreneurs defined as new entrepreneurs who were previously unemployed and looking for a job—reached 84 percent in 2015 and is now more than ten percentage points higher than it was in 2009 at the height of the Great Recession.
- The rise in Opportunity Share of New Entrepreneurs has been widespread across demographic groups, but with a notable increase for men from 2011 to 2015 going from 68 percent to 78 percent. This means that, for every hundred new male entrepreneurs, ten fewer are coming directly out of unemployment now than four years ago.

Startup Density

- Looking at slightly later-stage startups, those new businesses hiring employees, the 2016 Index fell from 81.9 to 80.4 new employer businesses per 1,000 employer businesses. U.S. startup density has been stuck roughly 20 percent lower than pre-Great Recession levels for the last four years and has trended downward for some time.

National Trends in Entrepreneurial Demographics

Gender of New Entrepreneurs – Male and Female Entrepreneurs

- The startup gender gap is still large, although it decreased last year. The rate of women entrepreneurs saw the biggest increase in almost twenty years—tied with a comparable increase in 1998.
- The Rate of New Entrepreneurs has gone up for both male and female entrepreneurs—from 0.41 percent to 0.42 percent for males and from 0.22 percent to 0.26 percent for females. A Rate of New Entrepreneurs of 0.42 means that 420 out of every 100,000 males become new entrepreneurs in a given month. Most new entrepreneurs in the 2016 Index are male—with men making up 59.4 percent of all new entrepreneurs.
- Female new entrepreneurs have a higher likelihood of being opportunity entrepreneurs than do their male counterparts, with 84.6 percent of the new female entrepreneurs in the 2016 Index not coming from unemployment, compared to an Opportunity Share of New Entrepreneurs of 78 percent for males.

Ethnicity of New Entrepreneurs

- New entrepreneurs in the United States are becoming increasingly diverse, with 40 percent of new entrepreneurs being comprised of African American, Latino, Asian, or other non-white entrepreneurs in the 2016 Index.
- While most racial groups are more represented now among the entrepreneurs than before, one particular group has risen dramatically. The share of new entrepreneurs who are Latino have more than doubled since 1996, from 10 percent to 20.8 percent of all new entrepreneurs.

Nativity of New Entrepreneurs – Immigrant and Native Entrepreneurs

- Immigrant entrepreneurs now account for 27.5 percent of all new entrepreneurs in the United States, up from just 13.3 percent in the 1997 Index. This is close to the two-decade high of 29.5 percent

The rise in Opportunity Share of New Entrepreneurs has been widespread across demographic groups, but with a notable increase for men from 2011 to 2015 going from 68 percent to 78 percent. This means that, for every hundred new male entrepreneurs, ten fewer are coming directly out of unemployment now than four years ago.

Immigrants continue to be a lot more likely than the native-born to become entrepreneurs, with the Rate of New Entrepreneurs being 0.53 percent for immigrants, compared to 0.29 percent for the native-born.

in the 2011 Index, reflecting the United States' increasing population of immigrants but also the much higher Rate of New Entrepreneurs among immigrants.

- Immigrants continue to be a lot more likely than the native-born to become entrepreneurs, with the Rate of New Entrepreneurs being 0.53 percent for immigrants, compared to 0.29 percent for the native-born.

Age of New Entrepreneurs

- The Rate of New Entrepreneurs has gone up for virtually every age group in the 2016 Index, except for adults age fifty-five to sixty-four, who experienced no changes. The increase has been particularly high for adults ages thirty-five to forty-four, which experienced an increase in the Rate of New Entrepreneurs from 0.33 percent to 0.40 percent in the latest year.
- The age of new entrepreneurs in the United States is basically split evenly in the 2016 Index. However, younger entrepreneurs (ages twenty to thirty-four) have been on the decline, down from 34.3 percent of all new entrepreneurs in the 1997 Index to 25 percent in the 2016 Index.
- The aging of the U.S. population, combined with the increasing Rate of New Entrepreneurs among individuals aged fifty-five to sixty-four, have shifted this group from making up 14.8 percent of new entrepreneurs in the 1997 Index to 24.3 percent of all new entrepreneurs in the 2016 Index.
- The opportunity share is highest among the oldest age group and lowest among the youngest age group. However, the large gap that previously existed between the fifty-five to sixty-four age group and the twenty to thirty-four age group has narrowed in recent years in terms of opportunity entrepreneurship.

Educational Background of New Entrepreneurs

- New entrepreneurs in the United States continue to come from many different educational backgrounds. However, since the 1997 Index, the share of new entrepreneurs who were college graduates has increased from 23.7 percent to 32.7 percent. This makes entrepreneurs with college degrees the biggest educational category of new entrepreneurs in the United States.

Veteran Status of New Entrepreneurs

- New veteran entrepreneurs continue to be a smaller part of the U.S. entrepreneurial population, mostly reflecting a falling population of veterans, not a declining Rate of New Entrepreneurs among veterans.

Understanding Startup Activity—A Look at the Indicators

The Kauffman Index of Startup Activity is a novel index measure of a broad range of startup activity in the United States—across national, state, and metropolitan-area levels. The index captures startup activity along three dimensions. First, it captures the Rate of New Entrepreneurs in the economy—the percentage of adults becoming entrepreneurs in a given month. Second, it captures the Opportunity Share of New Entrepreneurs, the percentage of new entrepreneurs driven primarily by "opportunity entrepreneurship" as opposed to "necessity entrepreneurship." Third, it captures Startup Density, the rate at which businesses with employees are created in

The aging of the U.S. population, combined with the increasing Rate of New Entrepreneurs among individuals aged fifty-five to sixty-four, have shifted this group from making up 14.8 percent of new entrepreneurs in the 1997 Index to 24.3 percent of all new entrepreneurs in the 2016 Index.

the economy. The combination of these three distinct and important dimensions of new business creation provides a broad view of startup activity in the country, across national, state, and metropolitan-area levels.

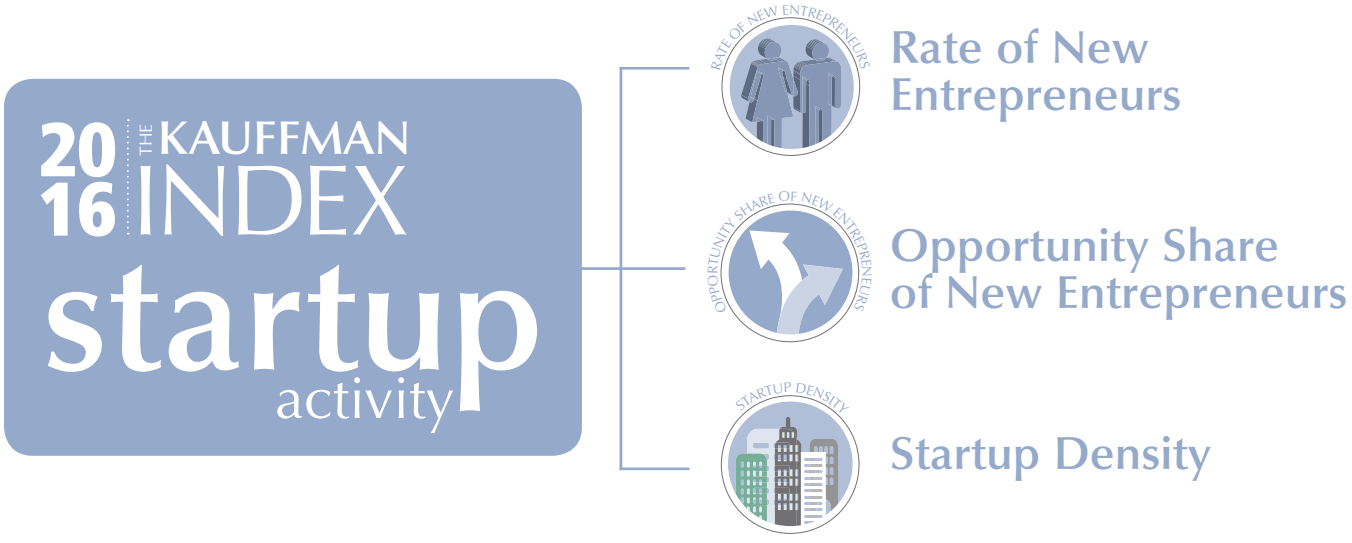
The Kauffman Index of Startup Activity is an early indicator of new business creation in the United States. Capturing new entrepreneurs in their first month and new employer businesses in their first year, the Index provides the earliest documentation of new business development across the country. The Startup Activity Index captures all types of business activity and is based on nationally representative sample sizes of more than a half million observations each year or administrative data covering the universe of employer business entities. The separate components of the Index also provide evidence on potentially different trends in business creation created by "opportunity" business creation relative to unemployment-related ("necessity") business creation over the business cycle. The Startup Activity Index improves over other possible measures of entrepreneurship because of its timeliness, dynamic nature, exclusion of "casual" businesses, and inclusion of all types of business activity, regardless of industry.

The Components of the Kauffman Index of Startup Activity

The Kauffman Index of Startup Activity provides a broad index measure of business startup activity in the United States. It is an equally weighted index of three normalized measures of startup activity.[1] The three component measures of the Startup Activity Index are:

1. The **Rate of New Entrepreneurs** in the economy, calculated as the percentage of adults becoming entrepreneurs in a given month.
2. The **Opportunity Share of New Entrepreneurs**, calculated as the percentage of new entrepreneurs driven primarily by "opportunity" vs. "necessity."
3. The **Startup Density** of a region, measured as the number of new employer businesses, normalized by the business population.

Before presenting trends in the Startup Activity Index, we briefly discuss each component measure (see Methodology and Framework for more details).



1. We normalize each of three measures by subtracting the mean and dividing by the standard deviation for that measure (i.e., create a z-score for each variable). This creates a comparable scale for including the three measures in the Startup Activity Index. We use annual estimates from 1996 to the latest year available (2012 or 2014) to calculate the mean and standard deviations for each component measure (see Methodology and Framework for more details).

Rate of New Entrepreneurs

- Early and broad measure of business ownership.
- Measures the percent of the U.S. adult population that became entrepreneurs, on average, in a given month.
- Includes entrepreneurs with incorporated or unincorporated businesses, with or without employees.
- Data based on the Current Population Survey, jointly produced by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics.
- What the number means:
  - For example, the Rate of New Entrepreneurs was 0.33 percent for the United States in the 2016 Index. That means that, on average, 330 people out of 100,000 adults became entrepreneurs in the United States in each month.

First, the Rate of New Entrepreneurs captures the percentage of the adult, non-business-owner population that starts a business each month. This component was formerly known as the Kauffman Index of Entrepreneurial Activity and was presented in a series of reports over about a decade (Fairlie 2014).[2] The Rate of New Entrepreneurs as measured here captures all new business owners, including those who own incorporated or unincorporated businesses and those who are employers or non-employers.[3] The Rate of New Entrepreneurs is calculated from matched data from the Current Population Survey (CPS), a monthly survey conducted by the U.S. Census Bureau and the Bureau of Labor Statistics.

Another component measure of the Startup Activity Index is the percentage of new entrepreneurs driven by

Opportunity Share of New Entrepreneurs

- Proxy indicator of the percent of new entrepreneurs starting businesses because they saw market opportunities.
- Measures the percentage of new entrepreneurs who were not unemployed before starting their businesses (e.g., have been previously working for another organization or studying in school).
- This indicator is important for two reasons: 1) Entrepreneurs who were previously unemployed seem to be more likely to start businesses with lower growth potential, out of necessity. Thus, the Opportunity Share of New Entrepreneurs serves as a broad proxy for growth prospects. 2) This measure helps us understand changes in the Rate of New Entrepreneurs motivated by weak job markets, such as the one we had after the recent Great Recession. If the Rate of New Entrepreneurs goes up but the Opportunity Share of New Entrepreneurs is low, we can see that many new entrepreneurs are starting businesses coming out of unemployment, and arguably started their companies largely out of necessity.
- Data based on the Current Population Survey jointly produced by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics.
- What the number means:
  - For example, the United States Opportunity Share of New Entrepreneurs was 84 percent in the 2016 Index. That means that approximately eight out of every ten new entrepreneurs in this year started their businesses coming out of another job, school, or other labor market states. Meanwhile, two out of ten started their businesses directly coming out of unemployment.

2. See http://www.kauffman.org/research-and-policy/kauffman-index-of-entrepreneurial-activity.aspx for previous reports.

3. The U.S. Census Bureau notes that the definitions of non-employers and self-employed business owners are not the same. Although most self-employed business owners are non-employers, about a million self-employed business owners are classified as employer businesses. http://www.census.gov/econ/nonemployer/index.html.

"opportunity entrepreneurship" as opposed to "necessity entrepreneurship." The Rate of New Entrepreneurs includes businesses of all types, and thus cannot cleanly disaggregate between the creation of high-growth potential businesses and individuals starting businesses because of limited job opportunities.[4] One approximate method for disentangling these two types of startups is to examine the share of new entrepreneurs coming out of unemployment compared to the share of the new entrepreneurs coming out of wage and salary work, school, or other labor market statuses (Fairlie 2014). Individuals starting businesses out of unemployment might be more inclined to start those businesses out of necessity than opportunity (although many of those businesses eventually could be very successful).

The third component of the Startup Activity Index is a measure of the rate of creation of businesses with employees. These employer businesses are generally larger and have higher growth potential than non-employer businesses do. Startup Density is defined as the number of newly established employer businesses to the total employer business population (in 1,000s). Both numbers come from the U.S. Census Bureau's Business Dynamics Statistics (BDS) and are taken from the universe of businesses with payroll tax records in the United States, as recorded by the Internal Revenue Service. Although new businesses with employees represent only a small share of all new businesses, they represent an important group for job creation and economic growth.

In this report, we present national estimates of the Startup Activity Index first. We then present trends in each of the three component measures of the Index. Some of the component measures provide information that allows for a presentation of trends by demographic groups.

A Big-Tent Approach to Entrepreneurship

The Kauffman Index of Entrepreneurship—the umbrella under which all Kauffman Index reports reside—attempts to view the complex phenomenon of entrepreneurship from many angles, each adding insight into the people and businesses that contribute to America's overall entrepreneurial dynamism.

Entrepreneurship is not a monolithic phenomenon, and it includes many moving parts. Creating new businesses is a different economic activity from running small businesses, which in turn is different from growing businesses. The Kauffman Index attempts to measure concretely these different kinds of entrepreneurship—Startup Activity, Main Street Entrepreneurship, and Growth. The Kauffman Index of Startup Activity focuses on the beginnings of entrepreneurship, specifically new business creation, market opportunity, and startup density. The Kauffman Index of Main Street Entrepreneurship focuses on the prevalence of local, small business and local business ownership. The Kauffman Index of Growth Entrepreneurship focuses on growing companies. Together, these three indices present a more holistic view of entrepreneurship in America.

Each of the indices that make up the Kauffman Index is constructed to give a spectrum of entrepreneurship

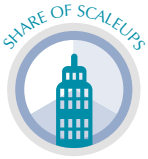
Startup Density

- Number of startup firms by total employer firm population.
- Startup businesses here are defined as employer firms less than one year old employing at least one person besides the owner. All industries are included on this measure.
- Measures the number of new employer startup businesses normalized by the employer firm population of an area. Because companies captured by this indicator have employees, they tend to be at a more advanced stage than are the companies in the Rate of New Entrepreneurs measure.
- Data based on the U.S. Census's Business Dynamics Statistics.
- What the number means:
  - For example, the 2016 Index Startup Density for the United States was 80.4 per 1,000 businesses. That means that, for every 1,000 employer businesses in the United States, there were 80.4 employer startup firms that were less than one year old in this year.

4. See Fairlie (2011) for more evidence and discussion.

Table A

Summary of Components Used Across Reports

Startup Activity	Main Street Entrepreneurship	Growth Entrepreneurship
 **Rate of New Entrepreneurs** The percentage of adults transitioning into entrepreneurship at a given point in time	 **Rate of Business Owners** The percentage of adults who are business owners in a locality at a given point in time	 **Rate of Startup Growth** The average growth of a cohort of new startups in their first five years
 **Opportunity Share of New Entrepreneurs** The percentage of new entrepreneurs driven primarily by "opportunity" vs. "necessity"		 **Share of Scaleups** The number of businesses that started small and grew to employ at least fifty people by their tenth year of operation as a percentage of all businesses ten years and younger
 **Startup Density** The number of new employer businesses, normalized by population	 **Established Small Business Density** The number of businesses older than five years with less than fifty employees, normalized by population	 **High-Growth Company Density** The number of fast-growing companies with at least $2 million in annual revenue, normalized by business population

measures from an industry-agnostic perspective. Table A summarizes the approach we use across the reports.

While at first pass, one might expect that certain patterns that appear in the Startup Activity Index to be tied to patterns that appear in future years of the Main Street and Growth Entrepreneurship Indices, we have taken steps to mitigate direct relationships. Different locations will have different performances on each of the indices, and high (or low) levels of activity in any given index does not cause or imply high (or low) levels of activity in the others.

National Trends in Startup Activity

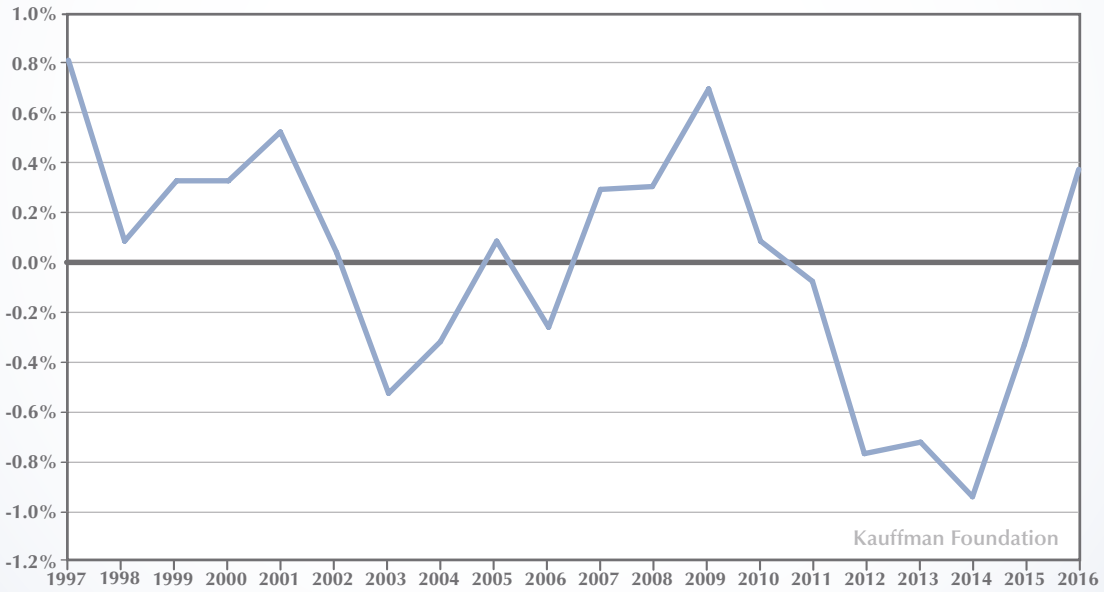
The Kauffman Index of Startup Activity rose in 2016, for the second year in a row, to a level of 0.38, indicating that our broadest measure of startup activity is now above the U.S. historical average from the last twenty years, although still below the peak preceding the downturn from the Great Recession. Table 1 and Figure 1 present results.

In the almost two decades between the late 1990s and today, the lowest levels of the Startup Activity Index occurred just two years ago for the 2014 Index. The recovery of startup activity in the United States in the last two years has been driven mostly by more people entering entrepreneurship and more of them entering out of choice rather than necessity; nonetheless, significant worry remains concerning the Startup Density component of the overall Index.

The lowest levels of the Startup Activity Index occurred just two years ago for the 2014 Index.

Figure 1

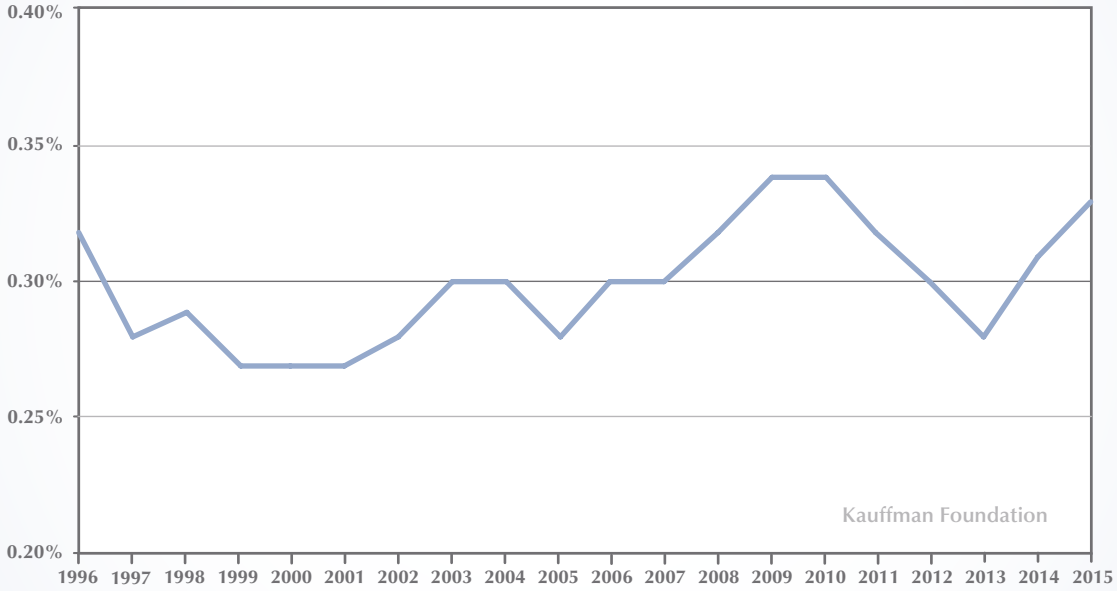
Kauffman Index of Startup Activity (1997–2016)



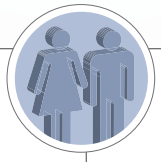
SOURCE: Authors' calculations using the CPS and the BDS.
For an interactive version, please see: www.kauffmanindex.org

Figure 1A

Rate of New Entrepreneurs (1996–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.



National Trends in Rate of New Entrepreneurs

The Rate of New Entrepreneurs measures the percentage of the adult, non-business-owner population that starts a business each month. It captures all new business owners, including those who own incorporated or unincorporated businesses and those who are employers or non-employers. Table 1 and Figure 1A present results.

In 2015, an average of 0.33 percent of the adult population, or 330 out of 100,000 adults, created new businesses each month.[5] This business-creation rate translates into more than 550,000 adults switching into self-employed business ownership in each month during the year. In 2015, the Rate of New Entrepreneurs continued a two-year increase that reversed a downward trend over the past few years. The Rate of New Entrepreneurs increased from 0.28 percent of the adult population (280 out of 100,000) in 2013.

Rate of New Entrepreneurs by Demographic Groups

The detailed demographic information available in the CPS and large sample sizes allows for the estimation of separate business-creation rates by gender, race, immigrant status, age, and level of education. This represents an advantage of the individual-level CPS data because large, nationally representative business-level datasets typically provide either no or very limited demographic information on the owner.

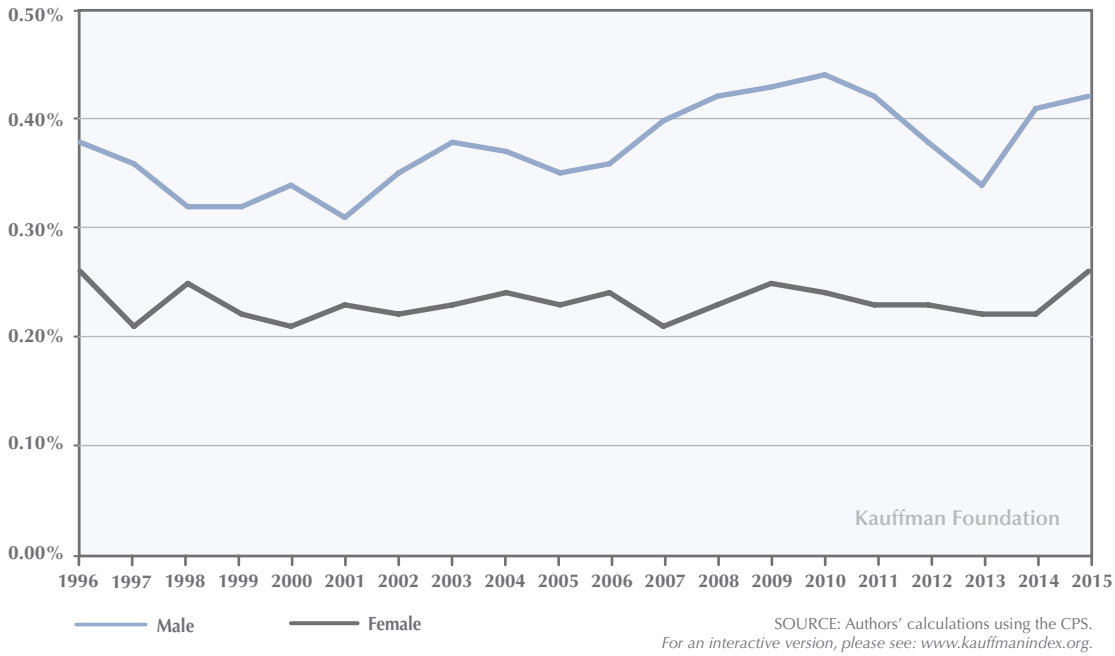
5. Estimates of annual business-creation rates would be approximately eight times higher, although direct comparisons are difficult because individuals potentially can start and exit from business ownership multiple times within the same year, our household-based measure may capture more informal entrepreneurs than administrative-based data, and the CPS does not collect business names to allow linking to other sources.

The Rate of New Entrepreneurs increased sharply from 2014 to 2015 for women, going from 0.22 percent (220 out of 100,000) to 0.26 percent (260 out of 100,000) (Table 2 and Figure 2 report results).

Males saw a modest increase in the Rate of New Entrepreneurs in 2015; however, men are substantially more likely to start businesses each month than are women, which holds in all reported years. In 2015, the male Rate of New Entrepreneurs was 0.42 percent, compared with the female Rate of New Entrepreneurs of 0.26 percent. The male/female gap in business creation decreased from 2014 to 2015.

Figure 2

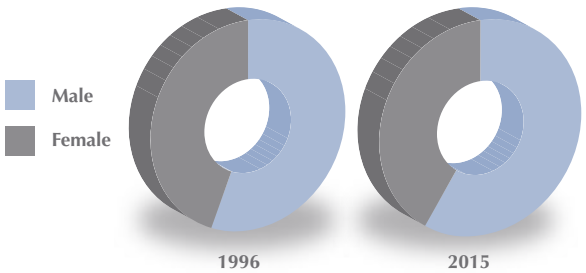
Rate of New Entrepreneurs by Gender (1996–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

Figure 2A

Changes in Composition of New Entrepreneurs by Gender (1996, 2015)

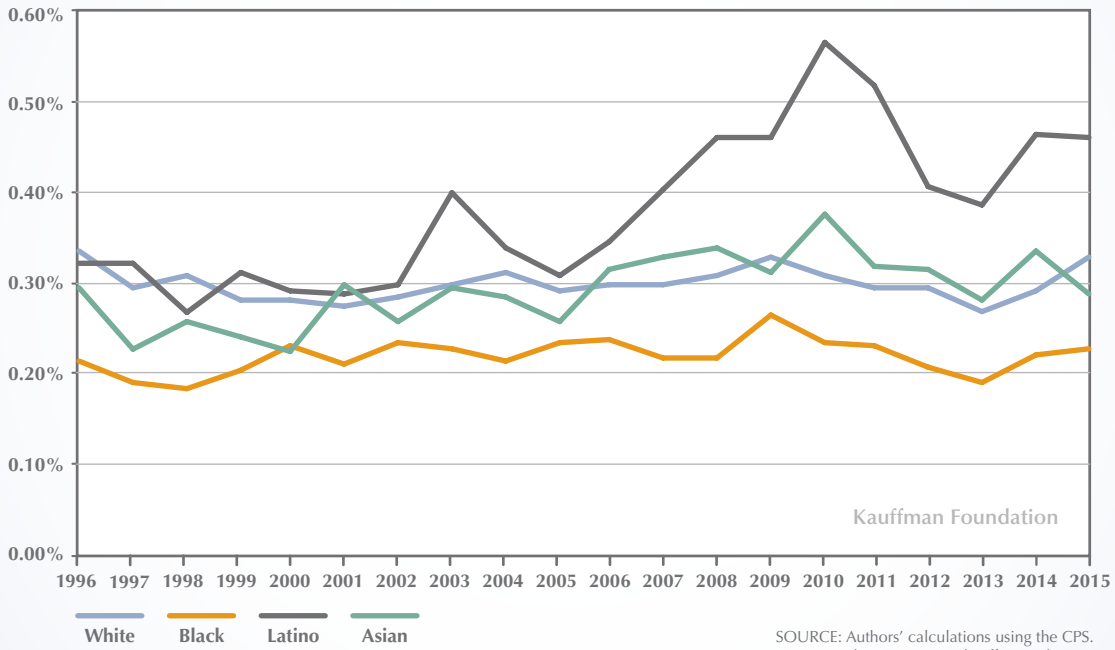


Gender	1996	2015
Male	56.3%	59.4%
Female	43.7%	40.6%

SOURCE: Authors' calculations using the CPS. Kauffman Foundation

Figure 3

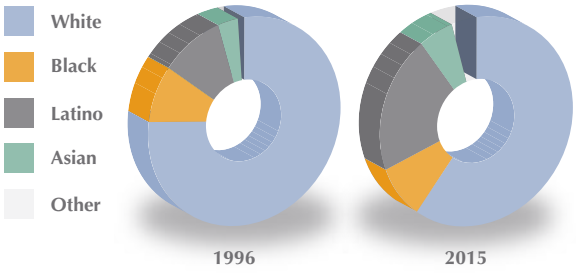
Rate of New Entrepreneurs by Race (1996–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

Figure 3A

Changes in Composition of New Entrepreneurs by Race (1996, 2015)



Race	1996	2015
White	77.1%	60.7%
Black	8.4%	8.9%
Latino	10.0%	20.8%
Asian	3.4%	5.7%
Other	1.0%	3.9%

SOURCE: Authors' calculations using the CPS. Kauffman Foundation

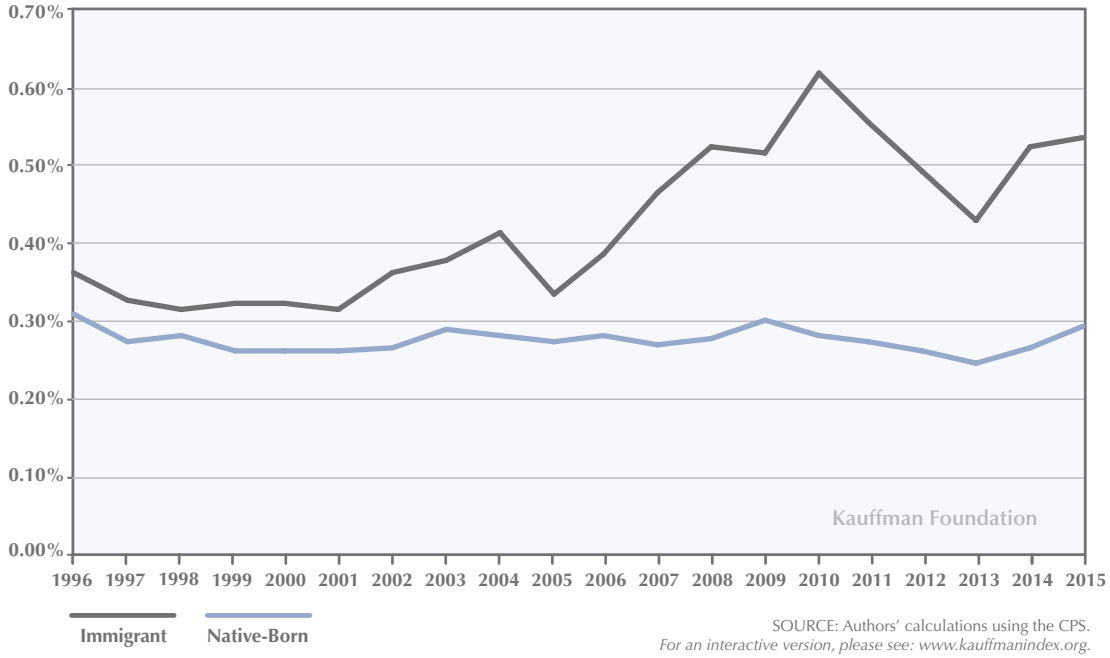
Among minority ethnic and racial groups, African Americans experienced a slight increase in the Rate of New Entrepreneurs between 2014 and 2015, whereas Asians experienced a drop in rates and Latinos had constant rates. Table 3 and Figure 3 report estimates of total new entrepreneurs' rate by race and ethnicity. The Rate of New Entrepreneurs is highest among Latinos and lowest among African Americans.

Reflecting the longer-term trends showing rising Latino rates of entrepreneurship and a growing share of the total U.S. population, the Latino share of all new entrepreneurs rose from 10 percent in 1996 to 21 percent in 2015. Figure 3A reports estimates of the share of new entrepreneurs by race from 1996 to 2015. The Asian share of new entrepreneurs also rose substantially from 1996 to 2015. The White share of new entrepreneurs declined over the past eighteen years, whereas the black share increased slightly.

The Rate of New Entrepreneurs increased slightly for immigrants in 2015. Table 4 and Figure 4 report estimates of the Rate of New Entrepreneurs by nativity. The Rate of New Entrepreneurs among immigrants of 0.53 percent is substantially higher than the 0.29 percent for the native-born. A growing immigrant population and rising entrepreneurship rate contributed to a rising share of new entrepreneurs that are immigrant. Figure 4A reports estimates of the share of new entrepreneurs by nativity. Immigrant entrepreneurs represent nearly 30 percent of all new entrepreneurs in 2015, which is up substantially from 13 percent in 1996.

Figure 4

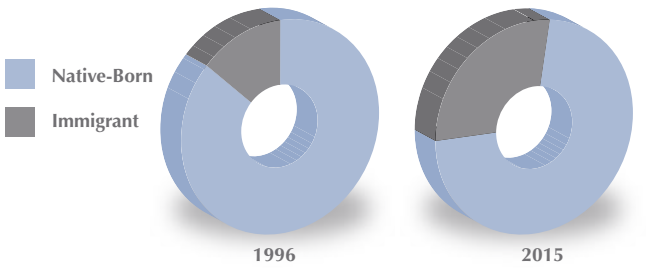
Rate of New Entrepreneurs by Nativity (1996–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

Figure 4A

Changes in Composition of New Entrepreneurs by Nativity (1996, 2015)



Nativity	1996	2015
Native-Born	86.7%	72.5%
Immigrant	13.3%	27.5%

SOURCE: Authors' calculations using the CPS. Kauffman Foundation

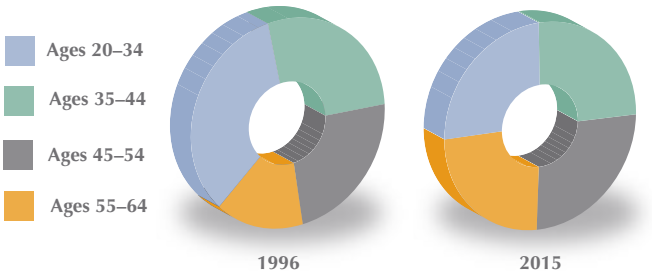
Figure 5

Rate of New Entrepreneurs by Age (1996–2015)

SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

Figure 5A

Changes in Composition of New Entrepreneurs by Age (1996, 2015)



Age	1996	2015
Ages 20–34	34.3%	25.0%
Ages 35–44	27.4%	25.5%
Ages 45–54	23.5%	25.3%
Ages 55–64	14.8%	24.3%

SOURCE: Authors' calculations using the CPS. Kauffman Foundation

Table 5 and Figure 5 report estimates of the Rate of New Entrepreneurs by age group. All age groups experienced increases in the Rate of New Entrepreneurs except the fifty-five to sixty-four age group, which experienced no change in 2015. The Rate of New Entrepreneurs is lowest among the youngest group.

Conversely, it is important to consider the changing population demographics, such as the aging of baby boomers and the rise of millennials in the workforce. For this, we present Figure 5A, which estimates the share of new entrepreneurs by age group. An aging population has led to a rising share of new entrepreneurs in the age fifty-five to sixty-four group. This group represented 15 percent of new entrepreneurs in 1996, whereas it represented 24 percent of new entrepreneurs in 2015.

The Rate of New Entrepreneurs increased for individuals with all levels of education. Table 6 and Figure 6 report estimates by education level. The Rate of New Entrepreneurs increased most among high school dropouts and those with some college. The Rate of New Entrepreneurs is highest among the least-educated group, but this partially reflects a high level of "necessity entrepreneurship" for this group, arguably driven by more-limited labor market opportunities.

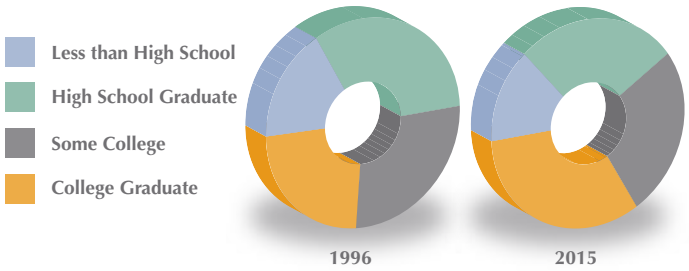
Figure 6

Rate of New Entrepreneurs by Education (1996–2015)

SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

Figure 6A

Changes in Composition of New Entrepreneurs by Education (1996, 2015)

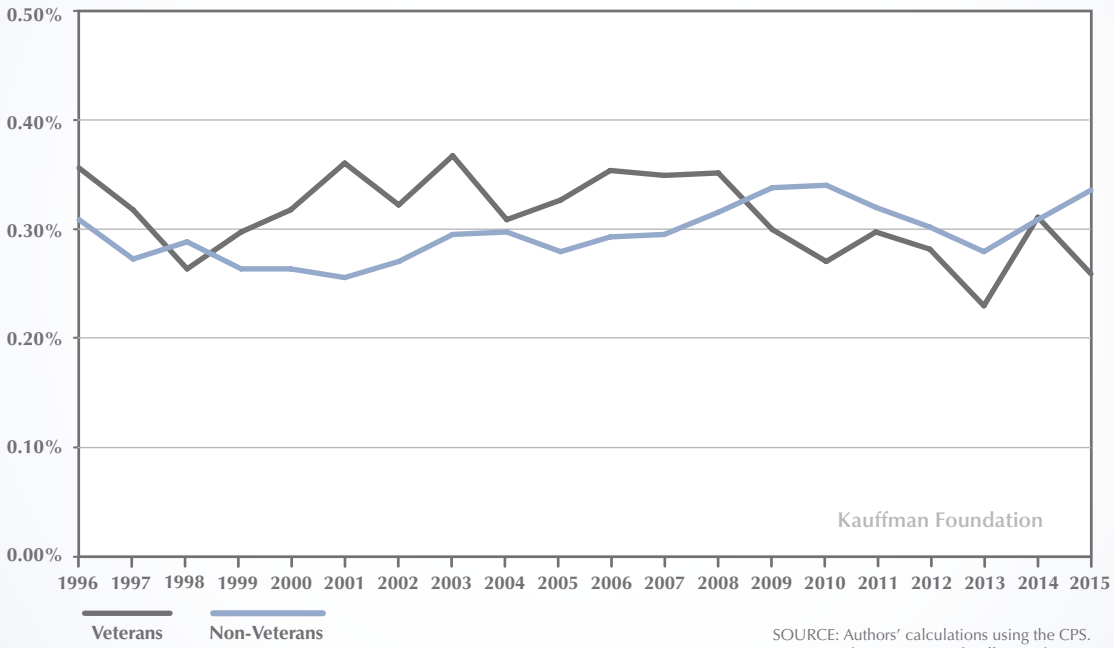


Race	1996	2015
Less than High School	17.16%	14.39%
High School Graduate	32.34%	26.96%
Some College	26.78%	25.98%
College Graduate	23.72%	32.67%

SOURCE: Authors' calculations using the CPS. Kauffman Foundation

Figure 7

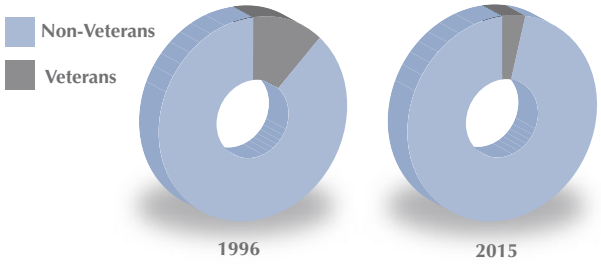
Rate of New Entrepreneurs by Veteran Status (1996–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

Figure 7A

Changes in Composition of New Entrepreneurs by Veteran Status (1996, 2015)



Veteran Status	1996	2015
Veterans	12.5%	4.1%
Non-Veterans	87.5%	95.9%

SOURCE: Authors' calculations using the CPS. Kauffman Foundation

Table 7 and Figure 7 report estimates of the Rate of New Entrepreneurs by veteran status. In 2015, the Rate of New Entrepreneurs was 0.26 percent for veterans, which was lower than the non-veteran rate. The share of all new entrepreneurs represented by veterans was 12 percent in 1996. This share steadily declined to 4 percent by 2015 (see Figure 7A). Most of the decline in the veteran share of new entrepreneurs over the past two decades was due to the declining share of veterans in the U.S. working-age population.[6]

6. See Fairlie (2012) for more details.

National Trends in Opportunity Share of New Entrepreneurs

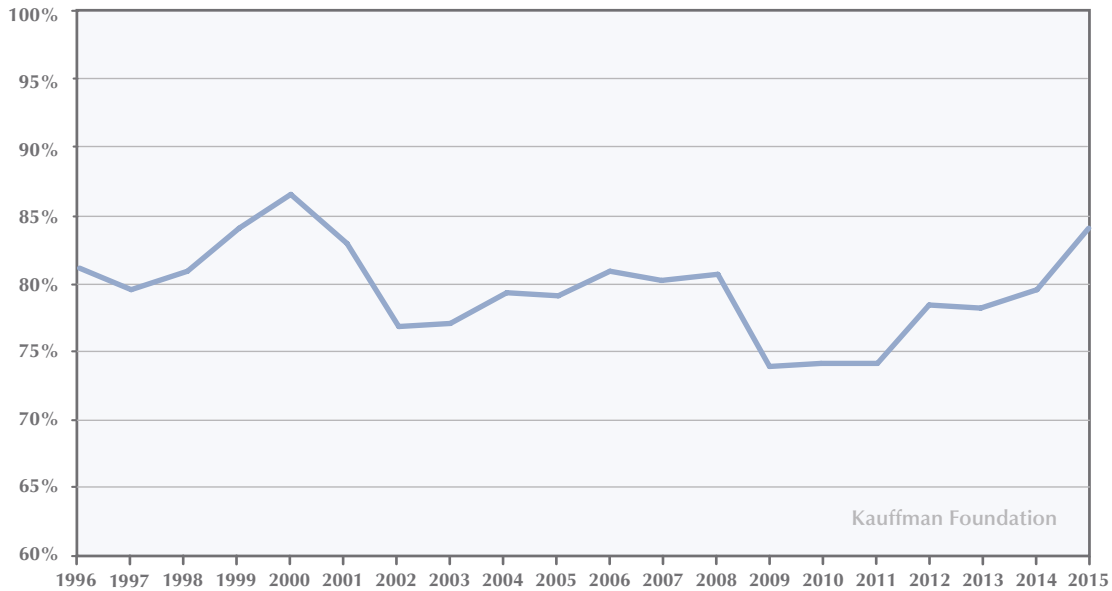
With this measure of new entrepreneurs that includes entrepreneurs and businesses of all types, it is impossible to cleanly disaggregate between the creation of high-growth-potential businesses and individuals starting businesses because of limited job opportunities. To identify separate startup motivations, the share of new entrepreneurs coming out of unemployment is compared to the share of the new entrepreneurs coming out of wage and salary work, school, or other labor market statuses. Individuals starting businesses out of unemployment might be more inclined to start those businesses out of necessity than opportunity. The distinction is not perfect because many successful businesses are created by people who have lost their jobs and are unemployed, but the distinction offers at least some suggestive evidence on the influence of economic conditions on overall business creation.

The Opportunity Share of New Entrepreneurs, the proportion of new entrepreneurs coming not from unemployed was substantially higher than at the end of the Great Recession. In 2015, 84 percent of the total number of new entrepreneurs was from those who were not unemployed and not looking for a job. This share increased substantially from 2014 and is now more than ten percentage points higher than it was in 2009 at the end of the recession. Figure 1B displays trends in the Opportunity Share of New Entrepreneurs from 1996 to 2015 (Table 1).

Over the past two decades, the share of new entrepreneurs engaging in "opportunity" entrepreneurship increased when economic conditions were improving and decreased when economic conditions were worsening. The largest share of "opportunity" entrepreneurship occurred at the height of the "Roaring Nineties," and the smallest share was in 2009 at the end of the Great Recession. The share of opportunity business creation also decreased in the recession of the early 2000s and increased in the following growth period in the mid-2000s. It is important to note, however, that, although the motivation for starting businesses when economic conditions are weak and unemployment rates are high may differ from the motivation for creating businesses in stronger economic conditions, many of these businesses may eventually be very successful.[7]

Figure 1B

Opportunity Share of New Entrepreneurs (1996–2015)

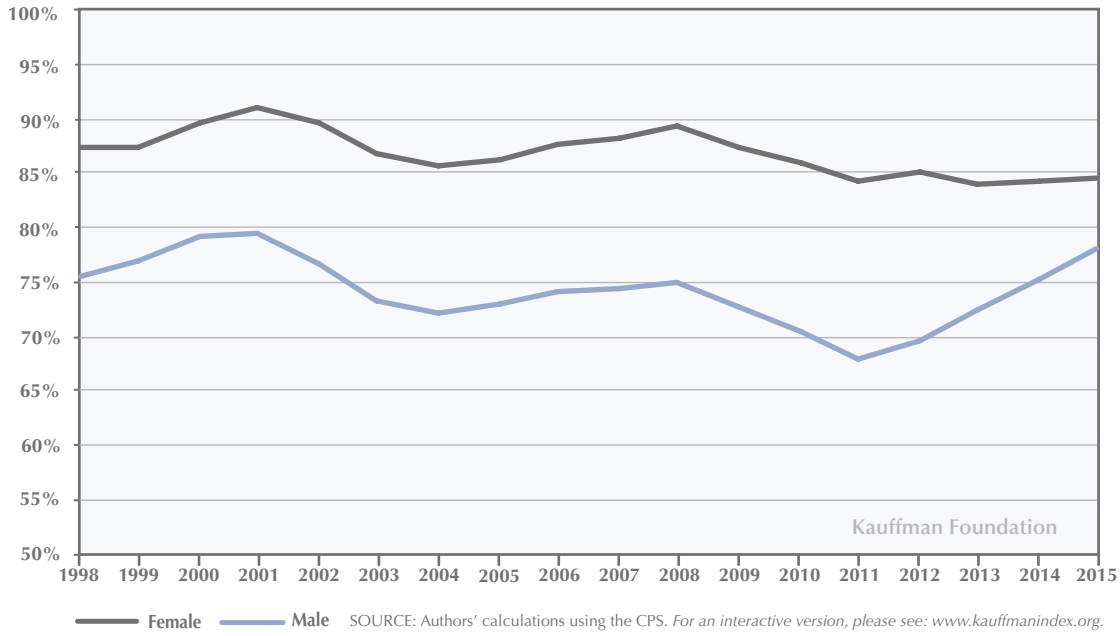


SOURCE: Authors' calculations using the CPS. *For an interactive version, please see: www.kauffmanindex.org.*

7. For example, the majority of Fortune 500 companies were started during recessions or bear markets. See Stangler (2009).

Figure 2B

Opportunity Share of New Entrepreneurs (Three-Year Moving Average) by Gender (1998–2015)



SOURCE: Authors' calculations using the CPS. *For an interactive version, please see: www.kauffmanindex.org.*

Opportunity Share of New Entrepreneurs by Demographic Groups

We also examine trends in the opportunity share of new entrepreneurs by demographic groups, reporting three-year moving averages to increase precision of estimates. The opportunity share of new entrepreneurs increased for men from 2014 to 2015, continuing an upward trend for the past few years as the economy has improved (Figure 2B reports estimates). Interestingly, the opportunity share of entrepreneurship is lower for men than for women, although some of the gap closed during the recent economic recovery. The opportunity share for women is much more stable over the business cycle than the opportunity share for men.

All racial and ethnic groups, except Asians, experienced increases in the Opportunity Share of New Entrepreneurs between 2014 and 2015, continuing trends over the past few years. Figure 3B reports estimates of total new entrepreneurs' rate by race and ethnicity. The Opportunity Share of New Entrepreneurs is highest among Asians and lowest among African Americans and Latinos.

The Opportunity Share of New Entrepreneurs increased for immigrants in 2015. Figure 4B reports estimates of the opportunity share of new entrepreneurs by nativity. The opportunity share of entrepreneurship for immigrants is roughly similar to that of natives.

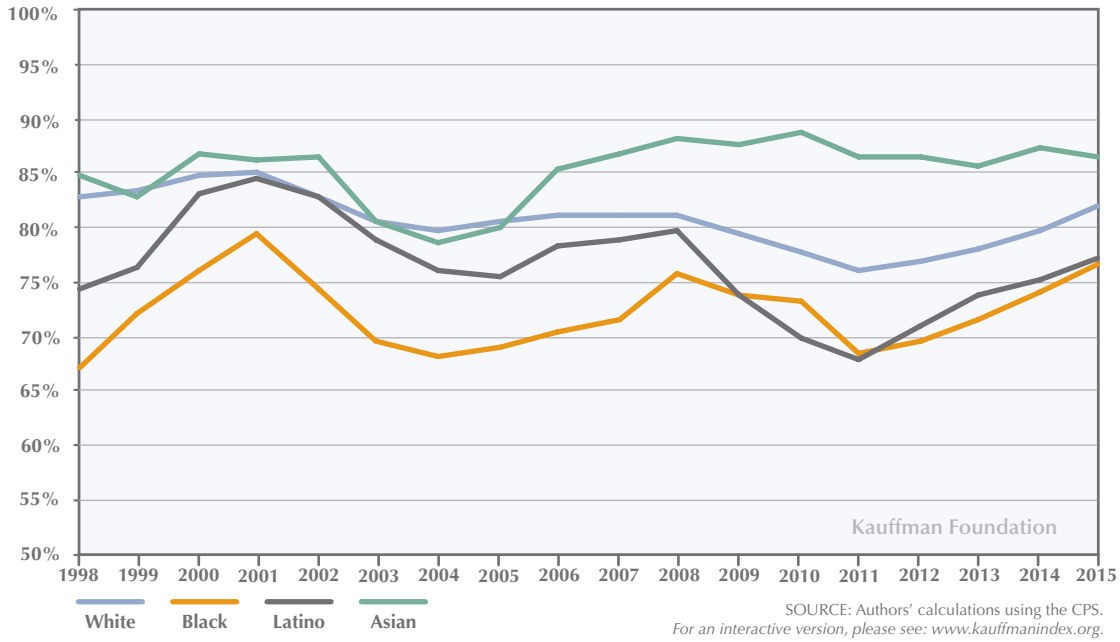
Figure 5B reports estimates of the Opportunity Share of New Entrepreneurs by age group. All of the age groups experienced increases in the opportunity share in 2015, continuing the upward trend since the Great Recession. The opportunity share is the highest among the oldest age group and lowest among the youngest age group; however, the large gap that had previously existed between the fifty-five to sixty-four age group has narrowed in recent years to about 2 percent.

The Opportunity Share of New Entrepreneurs increased for all education groups. Figure 6B reports estimates by education level. The opportunity share of entrepreneurship increases with education level: high school dropouts have the lowest opportunity share and college graduates have the highest opportunity share.

Figure 7B reports estimates of the Opportunity Share of New Entrepreneurs by veteran status. The opportunity share of entrepreneurship essentially remained constant in 2015 among veterans, but remained substantially lower than for non-veterans.

Figure 3B

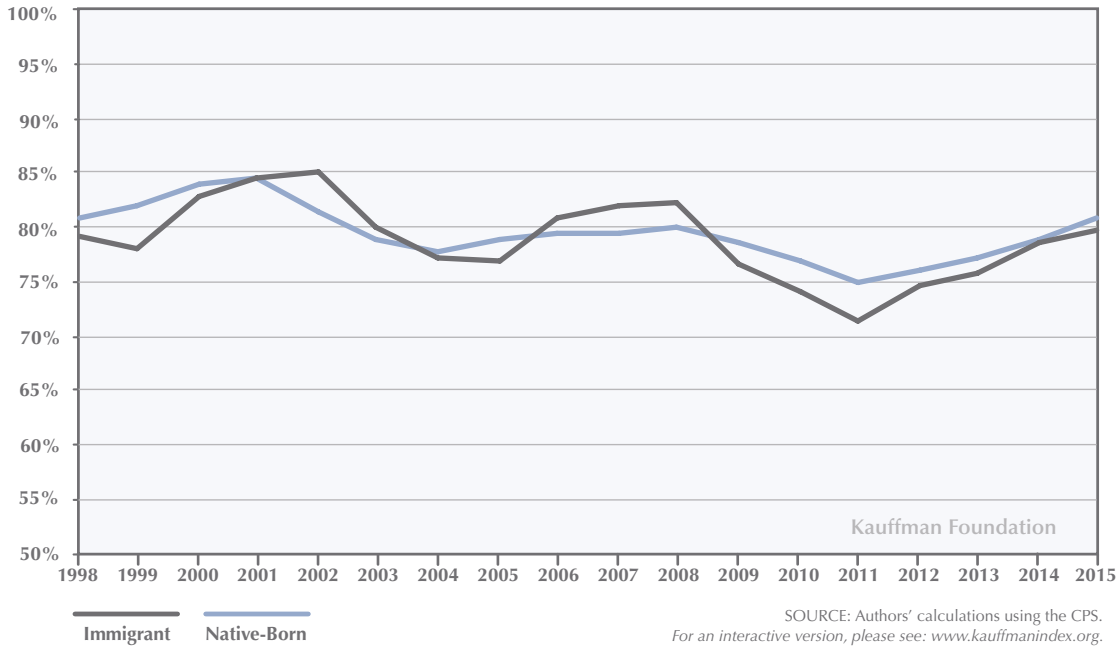
Opportunity Share of New Entrepreneurs (Three-Year Moving Average) by Race (1998–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

Figure 4B

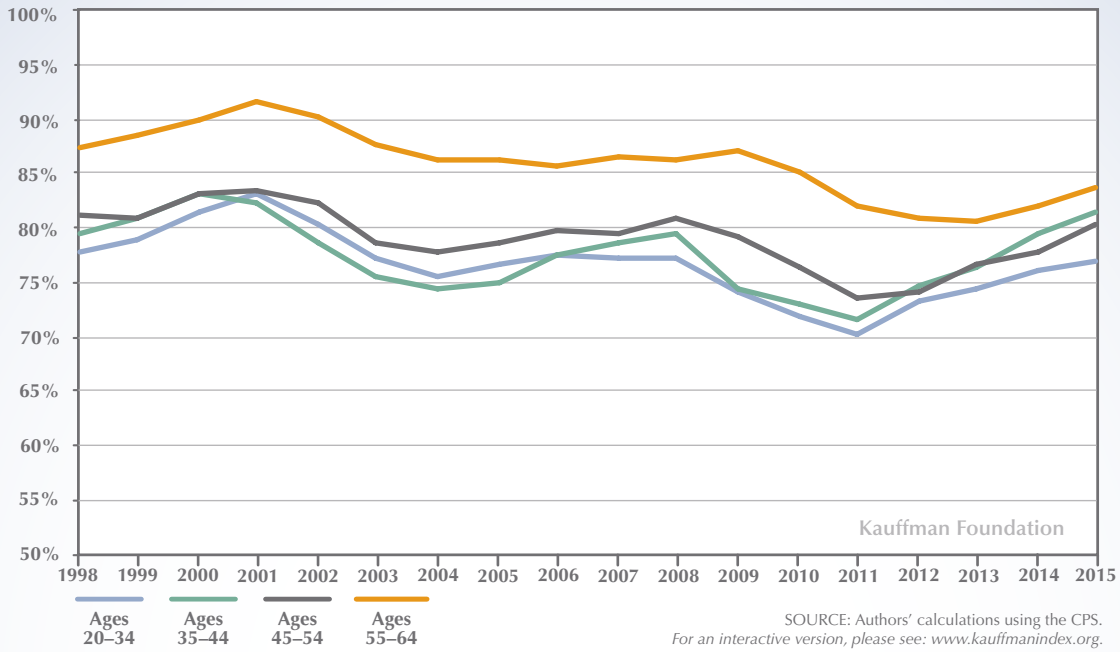
Opportunity Share of New Entrepreneurs (Three-Year Moving Average) by Nativity (1998–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

Figure 5B

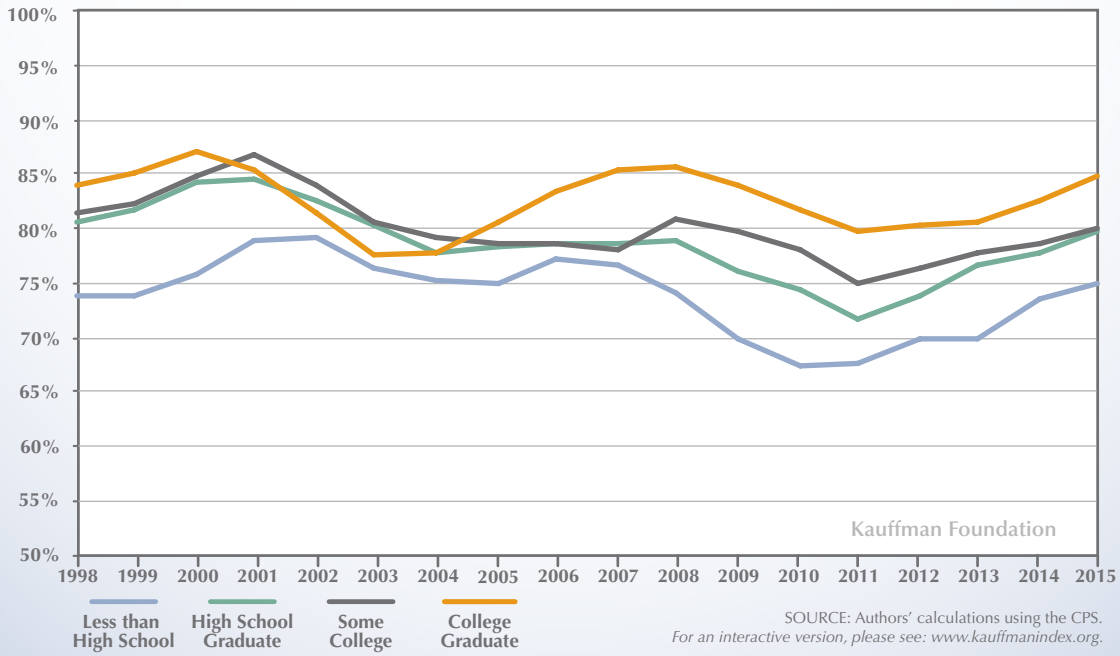
Opportunity Share of New Entrepreneurs (Three-Year Moving Average) by Age (1998–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

Figure 6B

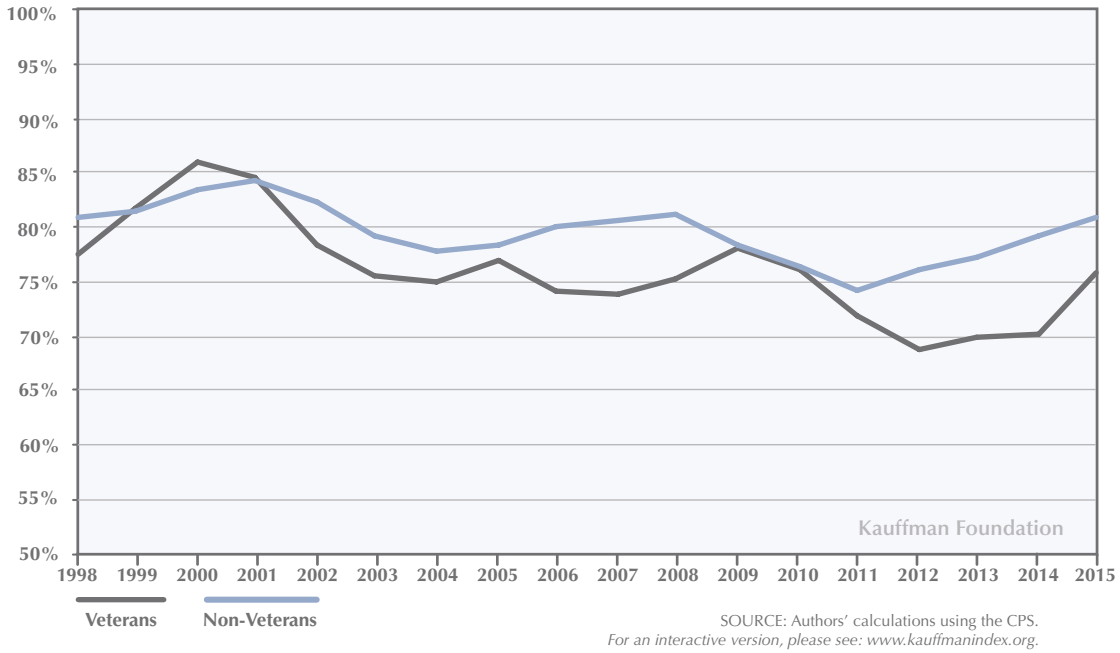
Opportunity Share of New Entrepreneurs (Three-Year Moving Average) by Education (1998–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

Figure 7B

Opportunity Share of New Entrepreneurs (Three-Year Moving Average) by Veteran Status (1998–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

National Trends in Startup Density

Focusing on Startup Density, Figure 1C and Table 1 report results for trends in the employer business-creation rate. Startup Density is the ratio of the number of new employer businesses divided by the total population of existing employer businesses. Here, we define startups as firms employing at least one person that are less than one year old. This is a yearly measure calculated from the U.S. Census Bureau's Business Dynamics Statistics for firm data and the Bureau of Economic Analysis for population data.

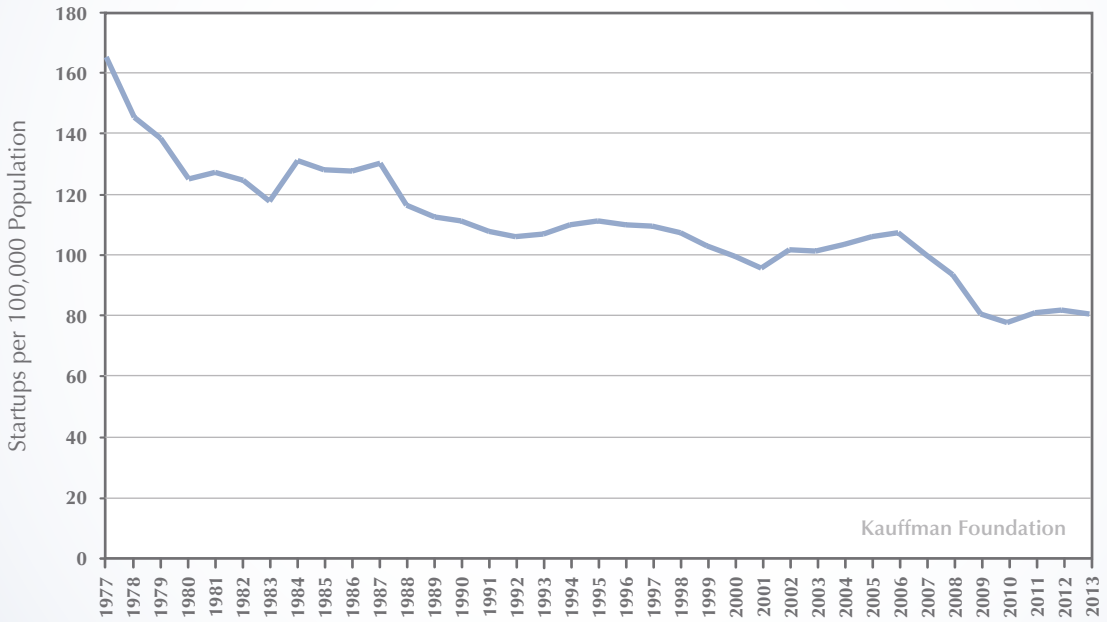
We present this indicator going back from 1977 to 2013, the latest year for which the data are available. This measure differs from the Rate of New Entrepreneurs in two key ways: 1) the Rate of New Entrepreneurs is a measure based on individuals—the entrepreneurs themselves. As such, it tracks individuals starting new businesses rather than tracking new businesses. 2) It is a very early and broad measure of Startup Activity, including all entrepreneurs, regardless of how many people their businesses employ, if any, and it includes self-employed entrepreneurs. Startup Density only includes businesses employing at least one person—thus being a slightly more mature measure of Startup Activity.

Both researchers and entrepreneurs have suggested density as a key indicator of vibrancy in entrepreneurial ecosystems, and there is high variation on this indicator across metropolitan areas in the United States. (Stangler and Bell-Masterson 2015 and Feld 2012).

The Startup Density was 80.4 in 2013, the most recent year with data available, which represents approximately 406,000 new employer businesses created that year. The Startup Density decreased from 81.9 (or 81.9 new businesses out of every 1,000 existing employer businesses) to 80.4 in 2012 to 2013. The 2013 Startup Density measurement of 80.4 is the second lowest on record, only coming in higher than the 77.7 low hit in 2010. U.S. startup density has been stuck roughly 20 percent lower than pre-Great Recession levels for the last four years and has trended downward for some time.

Figure 1C

Startup Density (1977–2013)



Source: Authors' calculations using BDS and BEA data.
For an interactive version, please see: www.kauffmanindex.org.

Appendix: National Data, Entrepreneurial Demographic Profiles, and Charts

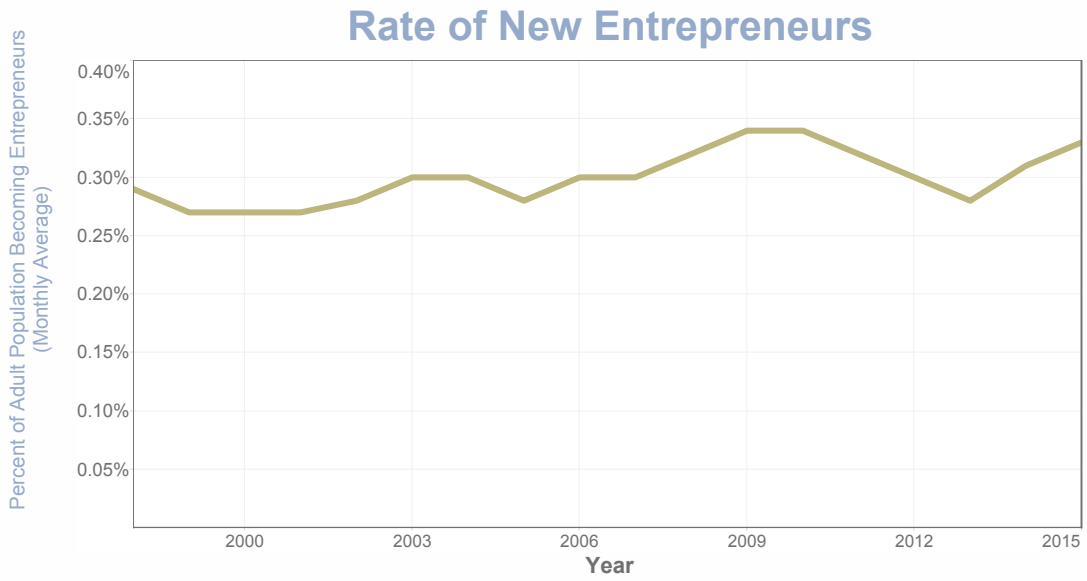
NATIONAL PROFILE

Rate of New Entrepreneurs

2016 Component	2015 Component
0.33%	0.31%

Early and broad measure of business ownership. Measures the percent of the adult population of an area that became entrepreneurs in a given month.

Source: Author calculations from CPS.
Yearly measure.

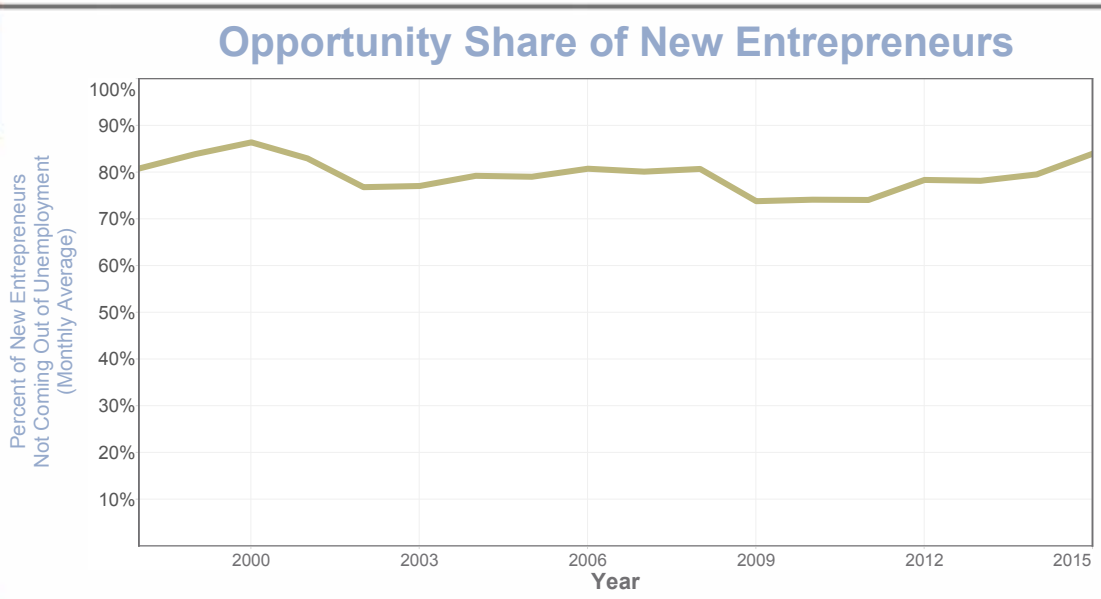


Opportunity Share of New Entrepreneurs

2016 Component	2015 Component
84.01%	79.57%

Proxy indicator of the percent of new entrepreneurs starting businesses because they saw market opportunities. Measures the percent of new entrepreneurs who were not unemployed before starting their businesses.

Source: Author calculations from CPS.
Yearly measure.



Startup Density

2016 Component	2015 Component
80.4	81.9

Number of startup firms per 1,000 firm population. Startup businesses here are defined as firms less than one-year-old employing at least one person besides the owner.

Source: Author calculations from BDS and BEA.
Yearly measure.

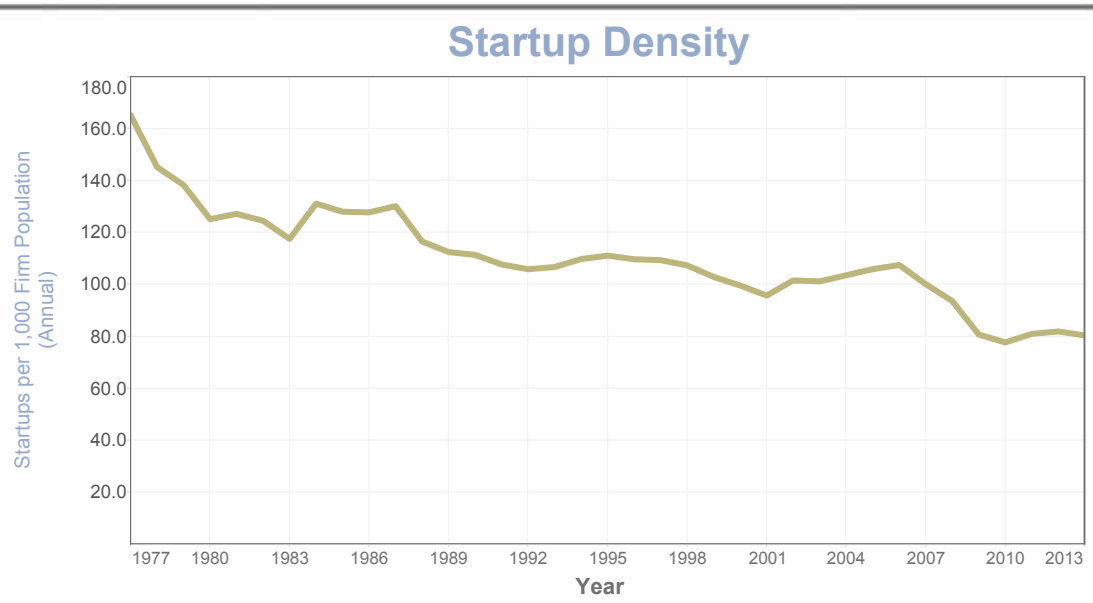


TABLE 1

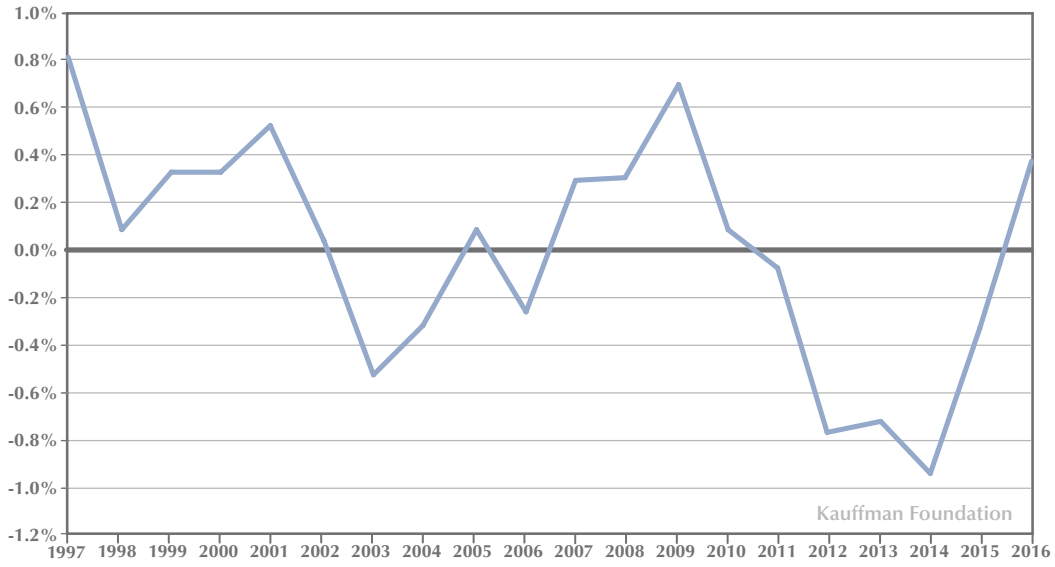
Kauffman Index of Startup Activity (1997–2016)

		Startup Index Component Measures					
		Rate of New Entrepreneurs		Opportunity Share of New Entrepreneurs		Startup Density	
Year	Startup Activity Index	Rate	N	Share	N	Rate	Firm Population
1997	0.81	0.32%	529,228	81.11%	1,692	109.8	4,527,905
1998	0.09	0.28%	531,337	79.54%	1,570	111.1	4,616,909
1999	0.33	0.29%	532,543	80.84%	1,631	109.7	4,692,979
2000	0.33	0.27%	532,231	83.92%	1,467	109.4	4,753,830
2001	0.53	0.27%	532,382	86.43%	1,537	107.4	4,797,108
2002	0.04	0.27%	561,573	82.99%	1,507	102.9	4,825,086
2003	-0.53	0.28%	624,303	76.84%	1,747	99.6	4,836,929
2004	-0.32	0.30%	614,589	77.09%	1,854	95.7	4,921,112
2005	0.08	0.30%	603,171	79.27%	1,833	101.6	4,954,344
2006	-0.26	0.28%	598,177	79.07%	1,767	101.2	5,007,143
2007	0.29	0.30%	592,917	80.79%	1,790	103.6	5,082,789
2008	0.30	0.30%	585,487	80.16%	1,738	105.9	5,184,188
2009	0.70	0.32%	585,677	80.74%	1,786	107.5	5,223,273
2010	0.08	0.34%	591,699	73.84%	1,937	100.1	5,283,644
2011	-0.08	0.34%	593,271	74.16%	1,920	93.7	5,240,822
2012	-0.77	0.32%	586,146	74.10%	1,825	80.7	5,067,511
2013	-0.73	0.30%	580,953	78.39%	1,780	77.7	4,993,176
2014	-0.95	0.28%	572,600	78.20%	1,609	81.0	4,952,787
2015	-0.33	0.31%	569,101	79.57%	1,734	81.9	5,020,295
2016	0.38	0.33%	552,887	84.01%	1,828	80.4	5,055,282

Notes: (1) Estimates calculated by authors using the Current Population Survey, the Business Dynamics Statistics and population data from the Bureau of Economic Analysis. (2) The Rate of New Entrepreneurs is the percentage of individuals (ages twenty to sixty-four) who do not own a business in the first survey month that start a business in the following month with fifteen or more hours worked. (3) All observations with allocated labor force status, class of worker, and hours worked variables are excluded.

Figure 1

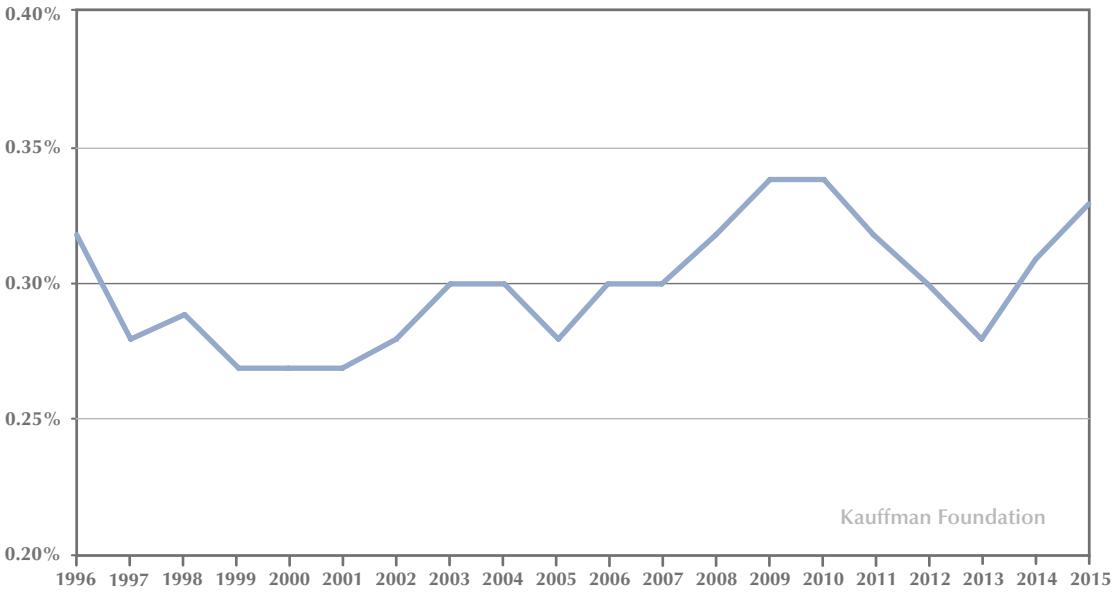
Kauffman Index of Startup Activity (1997–2016)



SOURCE: Authors' calculations using the CPS and the BDS.
For an interactive version, please see: www.kauffmanindex.org

Figure 1A

Rate of New Entrepreneurs (1996–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

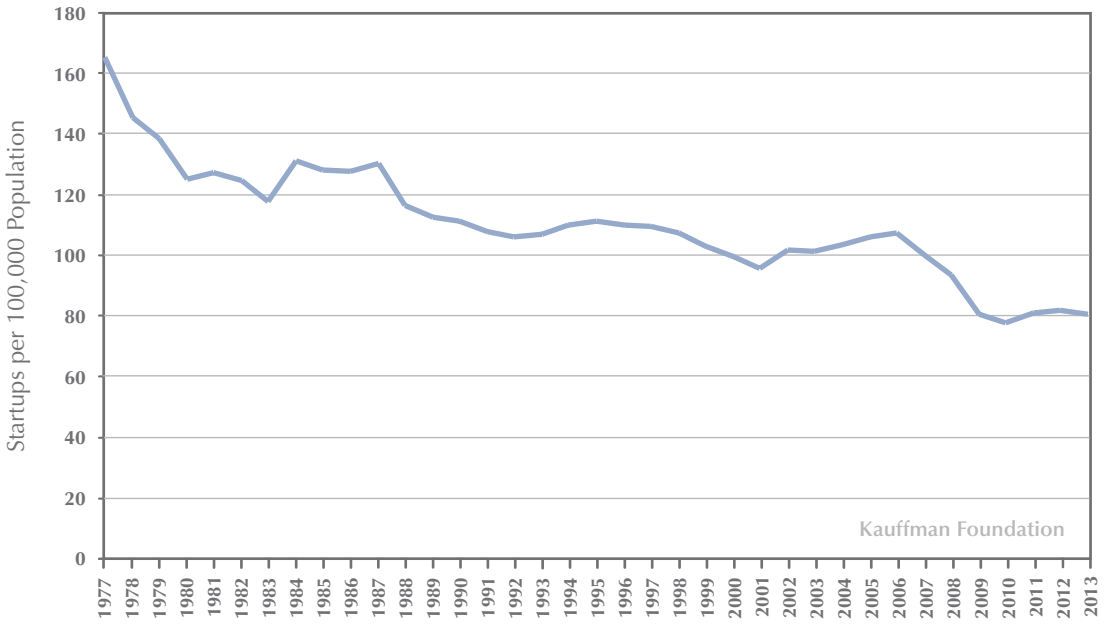
Figure 1B

Opportunity Share of New Entrepreneurs (1996–2015)

SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

Figure 1C

Startup Density (1977–2013)



Source: Authors' calculations using BDS and BEA data.
For an interactive version, please see: www.kauffmanindex.org.

TABLE 2

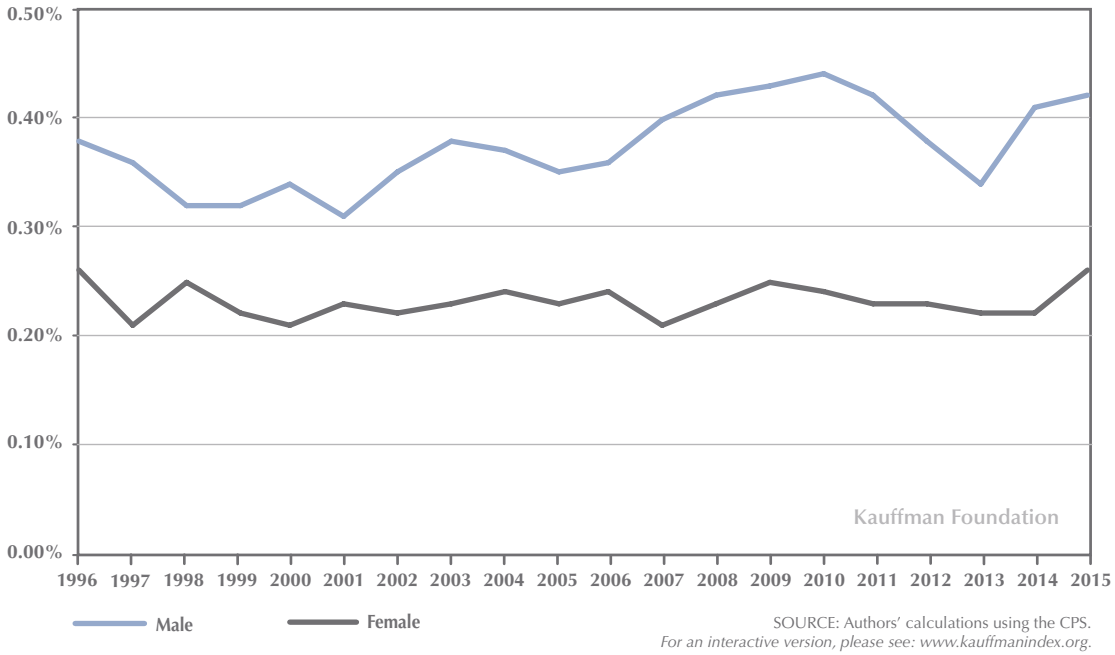
Rate of New Entrepreneurs by Gender (1996–2015)

	Male		Female		Total	
Year	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size
1996	0.38%	242,558	0.26%	286,670	0.32%	529,228
1997	0.36%	244,856	0.21%	286,481	0.28%	531,337
1998	0.32%	245,941	0.25%	286,602	0.29%	532,543
1999	0.32%	245,815	0.22%	286,416	0.27%	532,231
2000	0.34%	247,027	0.21%	285,355	0.27%	532,382
2001	0.31%	260,936	0.23%	300,637	0.27%	561,573
2002	0.35%	289,130	0.22%	335,173	0.28%	624,303
2003	0.38%	284,487	0.23%	330,102	0.30%	614,589
2004	0.37%	279,600	0.24%	323,571	0.30%	603,171
2005	0.35%	277,131	0.23%	321,046	0.28%	598,177
2006	0.36%	275,538	0.24%	317,379	0.30%	592,917
2007	0.40%	271,413	0.21%	314,074	0.30%	585,487
2008	0.42%	272,789	0.23%	312,888	0.32%	585,677
2009	0.43%	276,445	0.25%	315,254	0.34%	591,699
2010	0.44%	277,387	0.24%	315,884	0.34%	593,271
2011	0.42%	273,887	0.23%	312,259	0.32%	586,146
2012	0.38%	272,246	0.23%	308,707	0.30%	580,953
2013	0.34%	268,540	0.22%	304,060	0.28%	572,600
2014	0.41%	266,891	0.22%	302,210	0.31%	569,101
2015	0.42%	259,471	0.26%	293,416	0.33%	552,887

Notes: (1) Estimates calculated by authors using the Current Population Survey. (2) The entrepreneurship index is the percent of individuals (ages twenty to sixty-four) who do not own a business in the first survey month that start a business in the following month with fifteen or more hours worked. (3) All observations with allocated labor force status, class of worker, and hours worked variables are excluded.

Figure 2

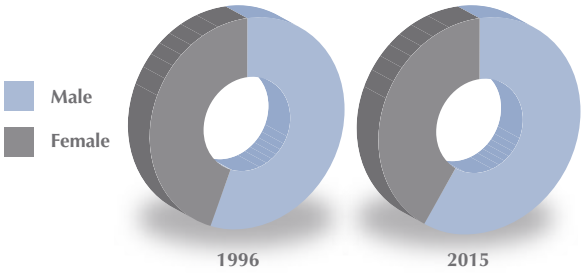
Rate of New Entrepreneurs by Gender (1996–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

Figure 2A

Changes in Composition of New Entrepreneurs by Gender (1996, 2015)



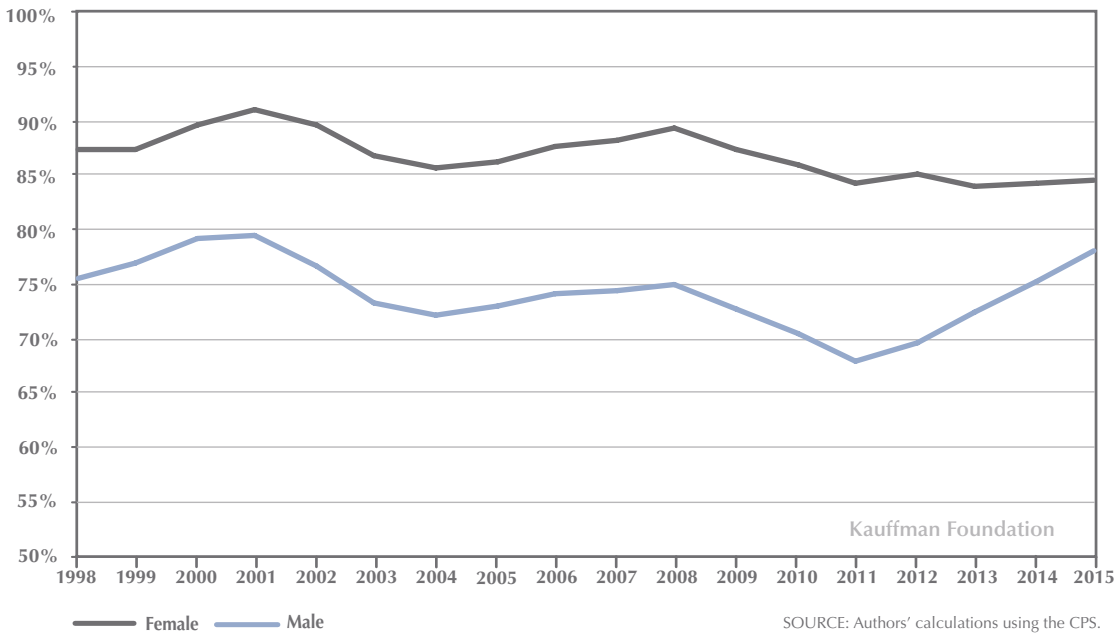
SOURCE: Authors' calculations using the CPS.

Kauffman Foundation

Gender	1996	2015
Male	56.3%	59.4%
Female	43.7%	40.6%

Figure 2B

Opportunity Share of New Entrepreneurs (Three-Year Moving Average) by Gender (1998–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

TABLE 3

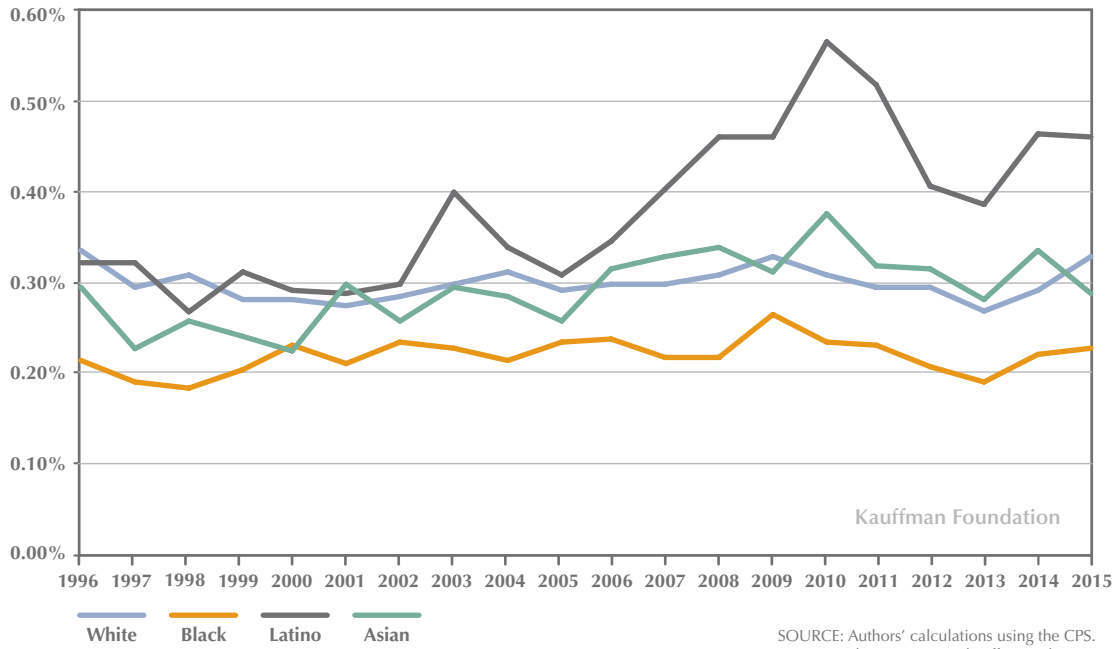
Rate of New Entrepreneurs by Race (1996–2015)

Year	White		Black		Latino		Asian		Total	
	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size
1996	0.33%	403,882	0.21%	54,582	0.32%	43,663	0.29%	20,344	0.32%	529,228
1997	0.29%	402,742	0.19%	55,372	0.32%	45,460	0.23%	20,729	0.28%	531,337
1998	0.31%	402,851	0.18%	54,726	0.27%	46,886	0.25%	21,137	0.29%	532,543
1999	0.28%	401,523	0.21%	54,183	0.31%	48,682	0.24%	21,139	0.27%	532,231
2000	0.28%	395,793	0.23%	55,089	0.29%	52,274	0.22%	21,892	0.27%	532,382
2001	0.27%	418,654	0.21%	57,667	0.29%	53,780	0.30%	23,603	0.27%	561,573
2002	0.28%	469,788	0.24%	61,598	0.30%	57,638	0.26%	26,534	0.28%	624,303
2003	0.30%	456,940	0.23%	58,699	0.40%	59,441	0.29%	23,889	0.30%	614,589
2004	0.31%	444,473	0.22%	56,789	0.34%	59,238	0.28%	24,310	0.30%	603,171
2005	0.29%	438,870	0.23%	55,069	0.31%	60,526	0.26%	25,541	0.28%	598,177
2006	0.30%	429,197	0.24%	55,675	0.34%	64,085	0.31%	26,555	0.30%	592,917
2007	0.30%	422,208	0.22%	56,392	0.40%	63,617	0.33%	26,882	0.30%	585,487
2008	0.31%	420,349	0.22%	56,405	0.46%	64,786	0.34%	28,066	0.32%	585,677
2009	0.33%	423,378	0.27%	57,564	0.46%	65,514	0.31%	28,961	0.34%	591,699
2010	0.31%	418,536	0.24%	60,550	0.56%	67,853	0.37%	30,243	0.34%	593,271
2011	0.29%	411,118	0.23%	59,939	0.52%	67,695	0.32%	31,456	0.32%	586,146
2012	0.29%	405,044	0.21%	58,800	0.40%	68,637	0.31%	32,688	0.30%	580,953
2013	0.27%	396,399	0.19%	58,700	0.38%	69,291	0.28%	32,693	0.28%	572,600
2014	0.29%	390,776	0.22%	59,010	0.46%	70,034	0.33%	33,114	0.31%	569,101
2015	0.32%	375,378	0.23%	60,147	0.46%	68,384	0.29%	32,669	0.33%	552,887

Notes: (1) Estimates calculated by authors using the Current Population Survey. (2) The entrepreneurship index is the percent of individuals (ages twenty to sixty-four) who do not own a business in the first survey month that start a business in the following month with fifteen or more hours worked. (3) Race and Spanish codes changed in 2003. Estimates for 2003 only include individuals reporting one race. (4) All observations with allocated labor force status, class of worker, and hours worked variables are excluded.

Figure 3

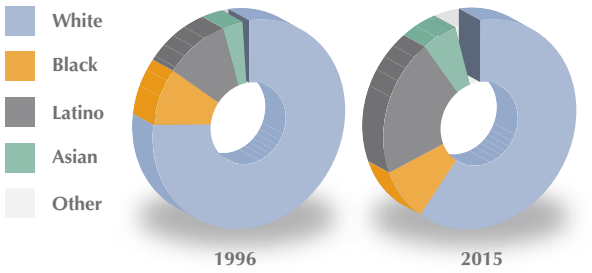
Rate of New Entrepreneurs by Race (1996–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

Figure 3A

Changes in Composition of New Entrepreneurs by Race (1996, 2015)



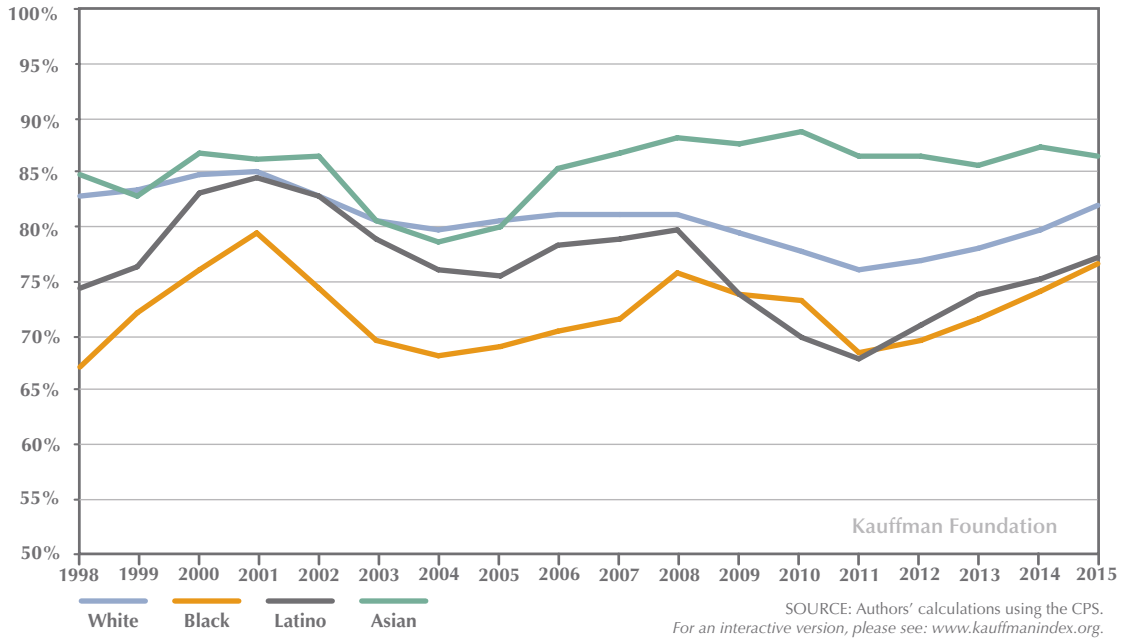
SOURCE: Authors' calculations using the CPS.

Kauffman Foundation

Race	1996	2015
White	77.1%	60.7%
Black	8.4%	8.9%
Latino	10.0%	20.8%
Asian	3.4%	5.7%
Other	1.0%	3.9%

Figure 3B

Opportunity Share of New Entrepreneurs (Three-Year Moving Average) by Race (1998–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

TABLE 4

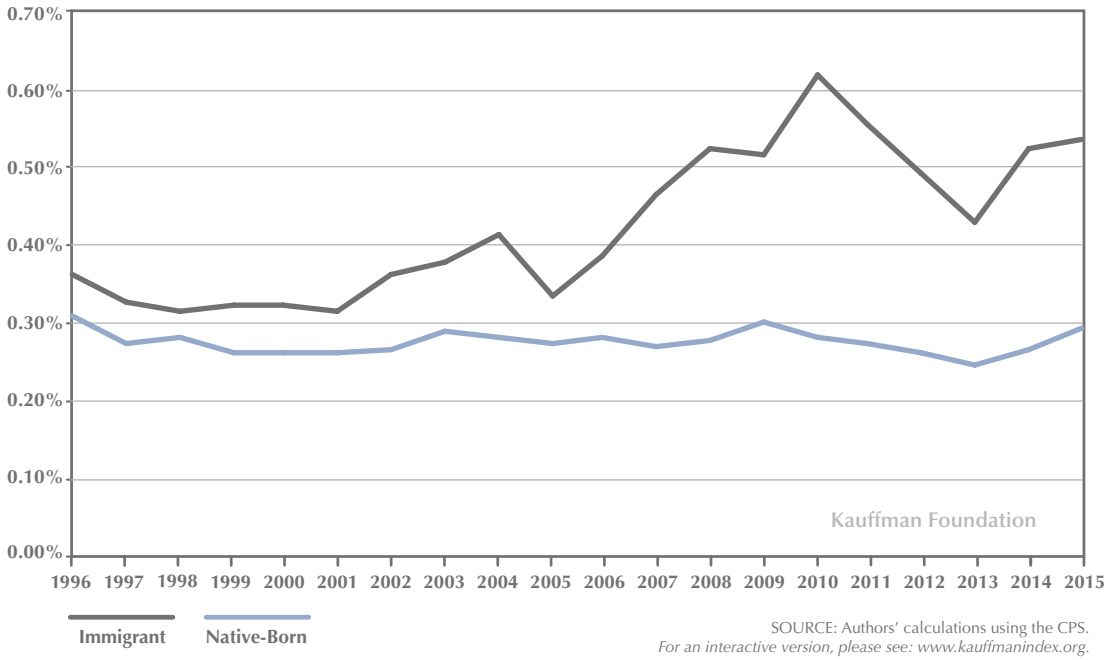
Rate of New Entrepreneurs by Nativity (1996–2015)

Year	Native-Born		Immigrant		Total	
	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size
1996	0.31%	473,602	0.36%	55,626	0.32%	529,228
1997	0.27%	473,536	0.33%	57,801	0.28%	531,337
1998	0.28%	472,728	0.31%	59,815	0.29%	532,543
1999	0.26%	471,772	0.32%	60,459	0.27%	532,231
2000	0.26%	467,393	0.32%	64,989	0.27%	532,382
2001	0.26%	493,029	0.31%	68,544	0.27%	561,573
2002	0.26%	550,023	0.36%	74,280	0.28%	624,303
2003	0.29%	540,397	0.38%	74,192	0.30%	614,589
2004	0.28%	529,234	0.41%	73,937	0.30%	603,171
2005	0.28%	523,221	0.33%	74,956	0.28%	598,177
2006	0.28%	514,691	0.38%	78,226	0.30%	592,917
2007	0.27%	507,469	0.46%	78,018	0.30%	585,487
2008	0.28%	507,088	0.52%	78,589	0.32%	585,677
2009	0.30%	511,798	0.51%	79,901	0.34%	591,699
2010	0.28%	510,631	0.62%	82,640	0.34%	593,271
2011	0.27%	503,500	0.55%	82,646	0.32%	586,146
2012	0.26%	498,127	0.49%	82,826	0.30%	580,953
2013	0.25%	491,045	0.43%	81,555	0.28%	572,600
2014	0.27%	487,845	0.52%	81,256	0.31%	569,101
2015	0.29%	474,013	0.53%	78,874	0.33%	552,887

Notes: (1) Estimates calculated by authors using the Current Population Survey. (2) The entrepreneurship index is the percent of individuals (ages twenty to sixty-four) who do not own a business in the first survey month that start a business in the following month with fifteen or more hours worked. (3) All observations with allocated labor force status, class of worker, and hours worked variables are excluded.

Figure 4

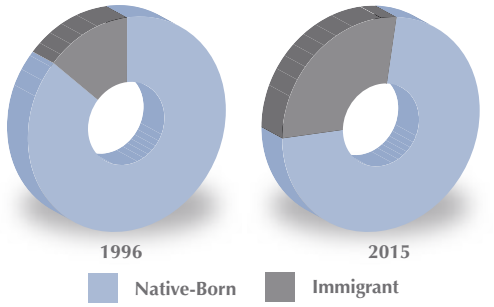
Rate of New Entrepreneurs by Nativity (1996–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

Figure 4A

Changes in Composition of New Entrepreneurs by Nativity (1996, 2015)

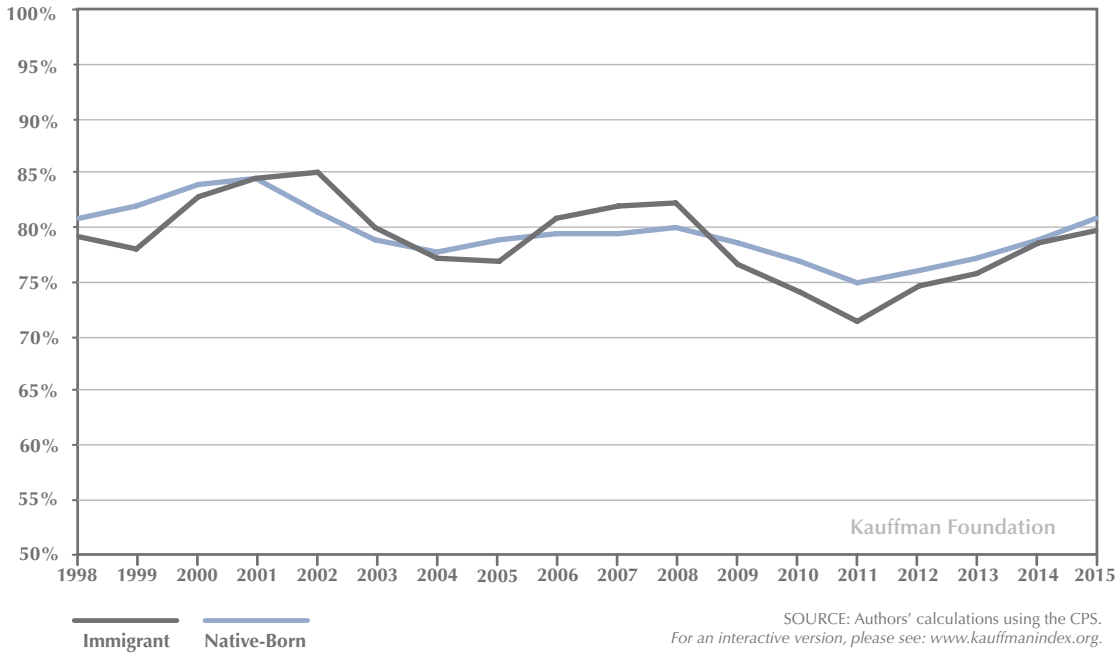


SOURCE: Authors' calculations using the CPS. Kauffman Foundation

Nativity	1996	2015
Native-Born	86.7%	72.5%
Immigrant	13.3%	27.5%

Figure 4B

Opportunity Share of New Entrepreneurs (Three-Year Moving Average) by Nativity (1998–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

TABLE 5

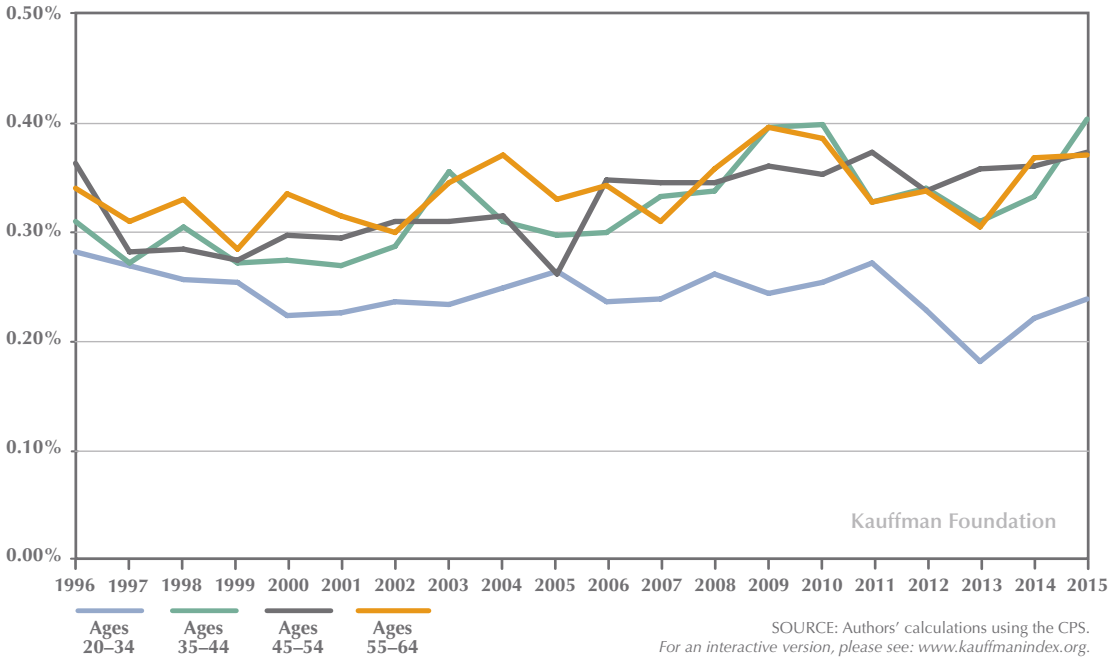
Rate of New Entrepreneurs by Age (1996–2015)

Year	Ages 20–34		Ages 35–44		Ages 45–54		Ages 55–64		Total	
	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size
1996	0.28%	192,739	0.31%	147,675	0.36%	112,694	0.34%	76,120	0.32%	529,228
1997	0.27%	190,207	0.27%	149,052	0.28%	115,190	0.31%	76,888	0.28%	531,337
1998	0.26%	186,045	0.31%	147,940	0.28%	119,157	0.33%	79,401	0.29%	532,543
1999	0.26%	180,272	0.27%	146,690	0.28%	123,372	0.28%	81,897	0.27%	532,231
2000	0.22%	179,317	0.27%	145,298	0.30%	125,782	0.34%	81,985	0.27%	532,382
2001	0.23%	185,723	0.27%	151,137	0.30%	136,921	0.32%	87,792	0.27%	561,573
2002	0.24%	203,885	0.29%	165,523	0.31%	153,253	0.30%	101,642	0.28%	624,303
2003	0.23%	198,319	0.36%	158,558	0.31%	152,456	0.35%	105,256	0.30%	614,589
2004	0.25%	193,789	0.31%	150,627	0.31%	150,797	0.37%	107,958	0.30%	603,171
2005	0.27%	190,816	0.30%	148,231	0.26%	149,204	0.33%	109,926	0.28%	598,177
2006	0.24%	187,554	0.30%	143,677	0.35%	149,395	0.34%	112,291	0.30%	592,917
2007	0.24%	184,293	0.33%	138,172	0.35%	147,129	0.31%	115,893	0.30%	585,487
2008	0.26%	184,773	0.34%	134,605	0.35%	147,508	0.36%	118,791	0.32%	585,677
2009	0.24%	187,073	0.40%	133,289	0.36%	149,073	0.40%	122,264	0.34%	591,699
2010	0.26%	190,232	0.40%	130,670	0.35%	147,479	0.39%	124,890	0.34%	593,271
2011	0.27%	188,276	0.33%	127,160	0.37%	142,498	0.33%	128,212	0.32%	586,146
2012	0.23%	186,889	0.34%	125,285	0.34%	139,858	0.34%	128,921	0.30%	580,953
2013	0.18%	183,389	0.31%	122,475	0.36%	136,815	0.31%	129,921	0.28%	572,600
2014	0.22%	183,187	0.33%	121,100	0.36%	133,520	0.37%	131,294	0.31%	569,101
2015	0.24%	178,440	0.40%	117,878	0.37%	127,120	0.37%	129,449	0.33%	552,887

Notes: (1) Estimates calculated by authors using the Current Population Survey. (2) The Rate of New Entrepreneurs is the percent of individuals who do not own a business in the first survey month that start a business in the following month with fifteen or more hours worked. (3) All observations with allocated labor force status, class of worker, and hours worked variables are excluded.

Figure 5

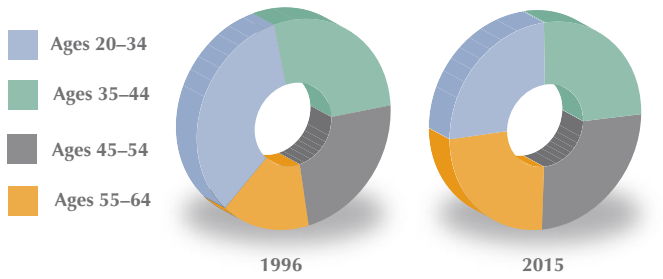
Rate of New Entrepreneurs by Age (1996–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

Figure 5A

Changes in Composition of New Entrepreneurs by Age (1996, 2015)

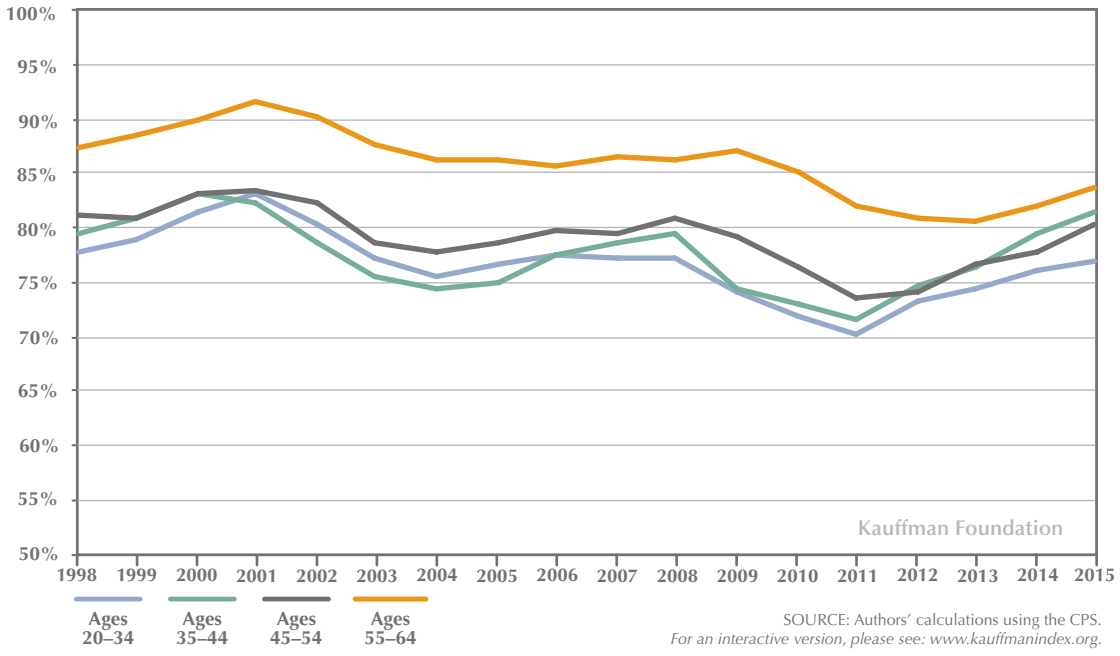


SOURCE: Authors' calculations using the CPS.

Age	1996	2015
Ages 20–34	34.3%	25.0%
Ages 35–44	27.4%	25.5%
Ages 45–54	23.5%	25.3%
Ages 55–64	14.8%	24.3%

Figure 5B

Opportunity Share of New Entrepreneurs (Three-Year Moving Average) by Age (1998–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

TABLE 6

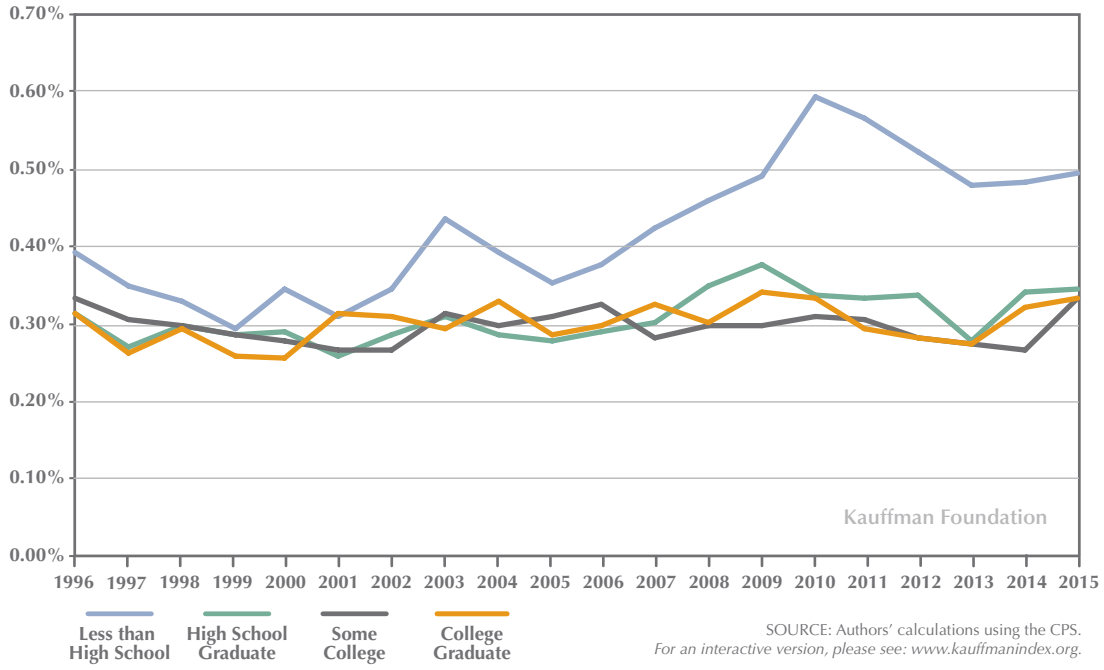
Rate of New Entrepreneurs by Education (1996–2015)

Year	Less than High School		High School Graduate		Some College		College Graduate		Total (Ages 25–64)	
	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size
1996	0.39%	63,973	0.31%	161,957	0.33%	125,972	0.31%	120,909	0.33%	472,811
1997	0.35%	62,812	0.27%	162,044	0.31%	126,575	0.26%	123,773	0.29%	475,204
1998	0.33%	61,102	0.30%	160,914	0.30%	126,835	0.29%	128,029	0.30%	476,880
1999	0.29%	58,714	0.29%	158,802	0.29%	128,248	0.26%	131,365	0.28%	477,129
2000	0.35%	57,870	0.29%	155,833	0.28%	129,809	0.26%	132,277	0.29%	475,789
2001	0.31%	59,371	0.26%	162,522	0.27%	138,448	0.31%	142,028	0.28%	502,369
2002	0.35%	63,517	0.29%	179,749	0.27%	154,165	0.31%	161,915	0.29%	559,346
2003	0.44%	61,420	0.31%	175,723	0.32%	151,212	0.29%	161,424	0.32%	549,779
2004	0.39%	60,080	0.29%	170,319	0.30%	149,067	0.33%	160,011	0.32%	539,477
2005	0.35%	59,521	0.28%	166,882	0.31%	147,893	0.29%	160,300	0.30%	534,596
2006	0.38%	58,458	0.29%	163,418	0.33%	147,465	0.30%	160,874	0.31%	530,215
2007	0.42%	55,263	0.30%	159,167	0.28%	146,362	0.33%	163,613	0.32%	524,405
2008	0.46%	53,823	0.35%	157,119	0.30%	147,531	0.30%	166,280	0.33%	524,753
2009	0.49%	53,791	0.38%	158,573	0.30%	149,708	0.34%	168,737	0.36%	530,809
2010	0.59%	53,366	0.34%	157,939	0.31%	149,218	0.33%	170,832	0.36%	531,355
2011	0.57%	51,934	0.33%	154,501	0.31%	147,693	0.29%	171,581	0.34%	525,709
2012	0.52%	49,911	0.34%	149,790	0.28%	147,249	0.28%	173,884	0.32%	520,834
2013	0.48%	48,059	0.28%	146,623	0.27%	144,977	0.28%	174,294	0.30%	513,953
2014	0.48%	47,308	0.34%	145,159	0.27%	143,859	0.32%	174,363	0.33%	510,689
2015	0.50%	47,222	0.35%	138,765	0.33%	139,006	0.33%	171,154	0.35%	496,147

Notes: (1) Estimates calculated by authors using the Current Population Survey. (2) The Rate of New Entrepreneurs is the percent of individuals (ages twenty-five to sixty-four) who do not own a business in the first survey month that start a business in the following month with fifteen or more hours worked. (3) All observations with allocated labor force status, class of worker, and hours worked variables are excluded.

Figure 6

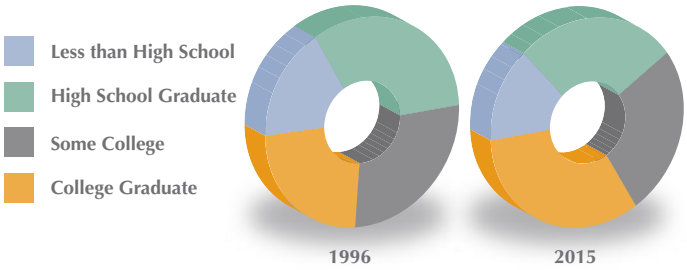
Rate of New Entrepreneurs by Education (1996–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

Figure 6A

Changes in Composition of New Entrepreneurs by Education (1996, 2015)

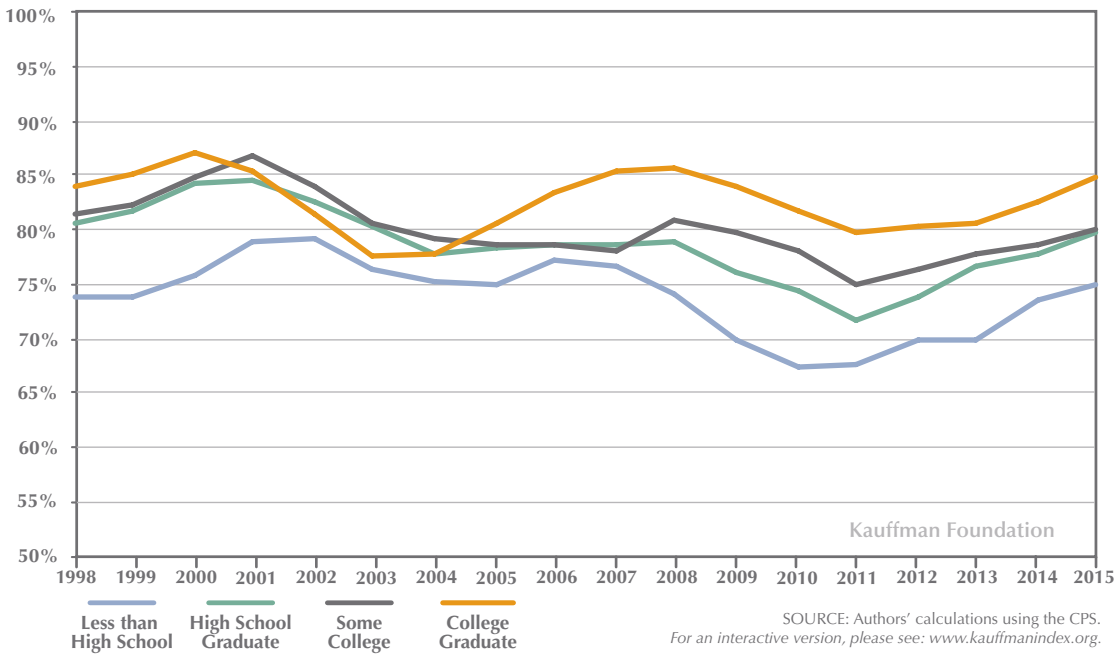


SOURCE: Authors' calculations using the CPS.

Race	1996	2015
Less than High School	17.16%	14.39%
High School Graduate	32.34%	26.96%
Some College	26.78%	25.98%
College Graduate	23.72%	32.67%

Figure 6B

Opportunity Share of New Entrepreneurs (Three-Year Moving Average) by Education (1998–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

TABLE 7

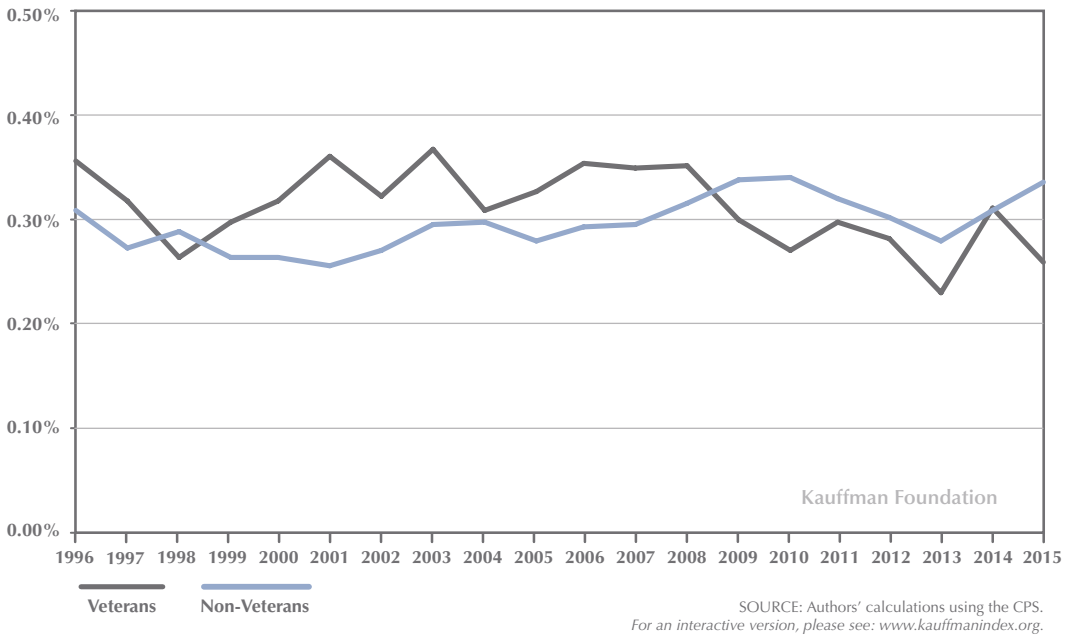
Rate of New Entrepreneurs by Veteran Status (1996–2015)

Year	Veterans		Non-Veteran		Total	
	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size
1996	0.36%	59,454	0.31%	467,880	0.32%	529,228
1997	0.32%	57,661	0.27%	471,315	0.28%	531,337
1998	0.27%	56,183	0.29%	473,580	0.29%	532,543
1999	0.30%	54,994	0.26%	473,878	0.27%	532,231
2000	0.32%	52,260	0.26%	475,578	0.27%	532,382
2001	0.36%	53,094	0.26%	502,976	0.27%	561,573
2002	0.32%	57,781	0.27%	558,890	0.28%	624,303
2003	0.37%	54,866	0.30%	550,940	0.30%	614,589
2004	0.31%	52,510	0.30%	541,182	0.30%	603,171
2005	0.33%	50,674	0.28%	541,198	0.28%	598,177
2006	0.35%	48,872	0.29%	544,045	0.30%	592,917
2007	0.35%	46,839	0.30%	538,648	0.30%	585,487
2008	0.35%	45,393	0.32%	540,284	0.32%	585,677
2009	0.30%	44,114	0.34%	547,585	0.34%	591,699
2010	0.27%	42,163	0.34%	551,108	0.34%	593,271
2011	0.30%	40,396	0.32%	545,750	0.32%	586,146
2012	0.28%	37,481	0.30%	543,472	0.30%	580,953
2013	0.23%	35,124	0.28%	537,476	0.28%	572,600
2014	0.31%	33,123	0.31%	535,978	0.31%	569,101
2015	0.26%	31,367	0.34%	521,520	0.33%	552,887

Notes: (1) Estimates calculated by authors using the Current Population Survey. (2) The entrepreneurship index is the percent of individuals (ages twenty to sixty-four) who do not own a business in the first survey month that start a business in the following month with fifteen or more hours worked. (3) All observations with allocated labor force status, class of worker, and hours worked variables are excluded. (4) The total sample size is slightly larger than the sum of the veteran and non-veteran sample sizes from 1996 to 2005 because of missing values for veteran status in those years.

Figure 7

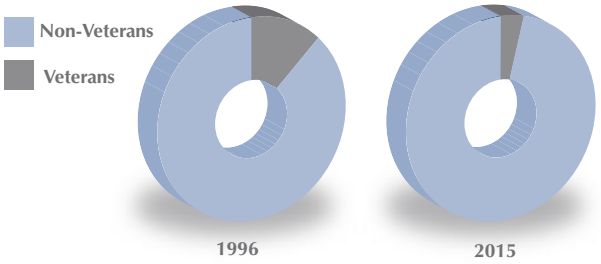
Rate of New Entrepreneurs by Veteran Status (1996–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

Figure 7A

Changes in Composition of New Entrepreneurs by Veteran Status (1996, 2015)



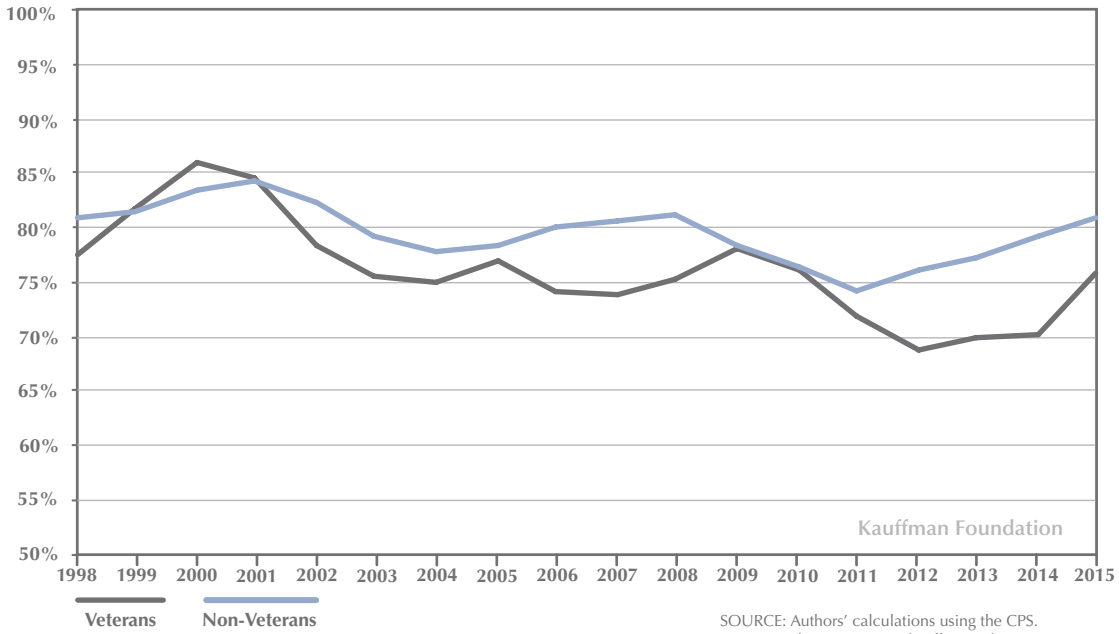
SOURCE: Authors' calculations using the CPS.

Kauffman Foundation

Veteran Status	1996	2015
Veterans	12.5%	4.1%
Non-Veterans	87.5%	95.9%

Figure 7B

Opportunity Share of New Entrepreneurs (Three-Year Moving Average) by Veteran Status (1998–2015)



SOURCE: Authors' calculations using the CPS.
For an interactive version, please see: www.kauffmanindex.org.

Methodology and Framework

In this part of the report, we discuss the methodology and framework for the Kauffman Index of Startup Activity reports across all geographic levels: national, state, and metropolitan area.

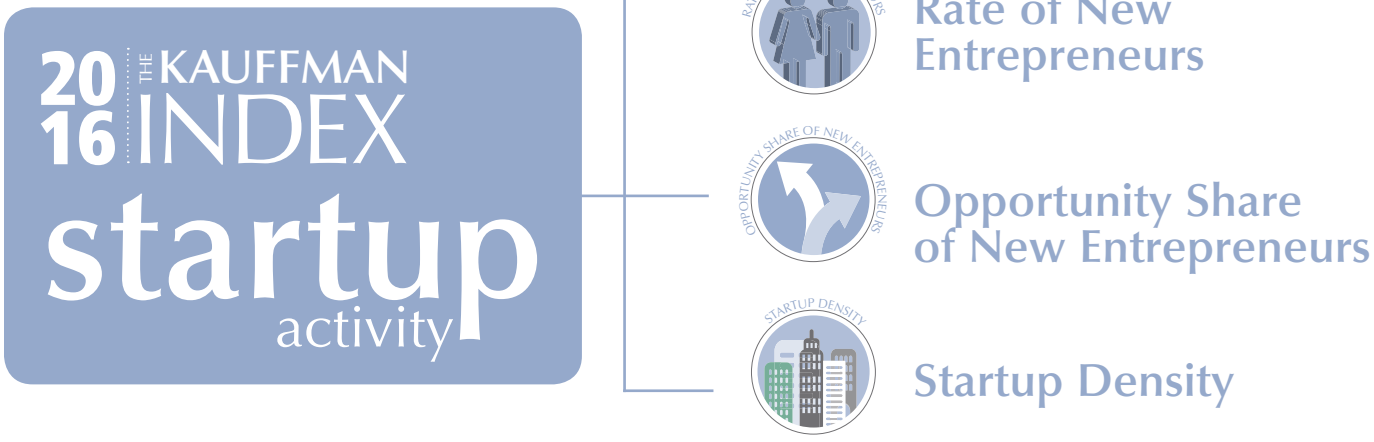
Definitions of Startup Activity Index Components

The Kauffman Index of Startup Activity is calculated based on three components: Rate of New Entrepreneurs, Opportunity Share of New Entrepreneurs, and Startup Density. In this section, we will share detailed definitions of each one of these components.

Component A: Rate of Entrepreneurs

Component A of the Kauffman Index of Startup Activity comes from the Current Population Survey (CPS) and is calculated by author Rob Fairlie. The CPS microdata capture all business owners, including those who own incorporated or unincorporated businesses, and those who are employers or non-employers. To create the Rate of New Entrepreneurs, all individuals who do not own a business as their main job are identified in the first survey month. By matching CPS files, it is then determined whether these individuals own a business as their main job with fifteen or more usual hours worked in the following survey month. Reducing the likelihood of reporting spurious changes in business ownership status from month to month, survey-takers ask individuals whether they currently have the same main job as reported in the previous month. If the answer is yes, the interviewer carries forward job information, including business ownership, from the previous month's survey. If the answer is no, the respondent is asked the full series of job-related questions. Survey-takers ask this question at the beginning of the job section to save time during the interview process and improve consistency in reporting.

The main job is defined as the one with the most hours worked. Individuals who start side businesses will, therefore, not be counted if they are working more hours on a wage/salary job. The requirement that business owners work fifteen or more hours per week in the second month is imposed to rule out part-time business



Rate of New Entrepreneurs

- Early and broad measure of business ownership.
- Measures the percent of the U.S. adult population that became entrepreneurs, on average, in a given month.
- Includes entrepreneurs with incorporated or unincorporated businesses, with or without employees.
- Data based on the Current Population Survey, jointly produced by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics.
- What the number means:
  - For example, the Rate of New Entrepreneurs was 0.33 percent for the United States in the 2016 Index. That means that, on average, 330 people out of 100,000 adults became entrepreneurs in the United States in each month.

owners and very small business activities. It may, therefore, result in an understatement of the percent of individuals creating any type of business.

The Rate of New Entrepreneurs also excludes individuals who owned a business and worked fewer than fifteen hours in the first survey month. Thus, the Rate of New Entrepreneurs does not capture business owners who increased their hours from less than fifteen per week in one month to fifteen or more hours per week in the second month. In addition, the Rate of New Entrepreneurs does not capture when these business owners changed from non-business owners to business owners with less than fifteen hours worked. These individuals are excluded from the sample, but may have been at the earliest stages of starting a business. More information concerning the definition is provided in Fairlie (2006).

The Rate of New Entrepreneurs component of the Startup Activity Index also may overstate entrepreneurship rates in certain respects because of small changes in how individuals report their work status. Longstanding business owners who also have salaried positions may, for example, report that they are not business owners as their main jobs in a particular month because their wage/salary jobs had more hours in that month. If the individuals then switched to having more hours in business ownership the following month, it would appear that a new business had been created.

For the definition of the Rate of New Entrepreneurs discussed in this report, all observations from the CPS with allocated labor force status, class of worker, and hours worked variables are excluded. The Rate of New Entrepreneurs is substantially higher for allocated or imputed observations. These observations were included in the first Kauffman Index report (Fairlie 2005). See Fairlie (2006) for a complete discussion of the issues and comparisons between unadjusted and adjusted Rate of New Entrepreneurs.

The CPS sample was designed to produce national and state estimates of the unemployment rate and additional labor force characteristics of the civilian, non-institutional population ages sixteen and older. The total national sample size is drawn to ensure a high level of precision for the monthly national unemployment rate. For each of the fifty states and the District of Columbia, the sample also is designed to guarantee precise estimates of average annual unemployment rates, resulting in varying sample rates by state (Polivka 2000). Sampling weights provided by the CPS, which also adjust for non-response and post-stratification raking, are used for all national and state-level estimates. The CPS also can be used to calculate metropolitan-area estimates, but only for the largest U.S. metropolitan areas. For example, the Bureau of Labor Statistics reports annual labor-force participation and unemployment rates for the largest fifty-four MSAs. We focus on the forty largest MSAs in our analysis and calculate moving averages when needed to ensure adequate precision in all reported estimates.

Component B: Opportunity Share of New Entrepreneurs

Building from the same data used for component A, the Opportunity Share of New Entrepreneurs is defined as the share of the new business owners that are coming out of wage and salary work, school, or other labor market statuses. Alternatively, individuals can start businesses coming out of unemployment.

Opportunity Share of New Entrepreneurs

- Proxy indicator of the percent of new entrepreneurs starting businesses because they saw market opportunities.
- Measures the percentage of new entrepreneurs who were not unemployed before starting their businesses (e.g., have been previously working for another organization or studying in school).
- This indicator is important for two reasons: 1) Entrepreneurs who were previously unemployed seem to be more likely to start businesses with lower growth potential, out of necessity. Thus, the Opportunity Share of New Entrepreneurs serves as a broad proxy for growth prospects. 2) This measure helps us understand changes in the Rate of New Entrepreneurs motivated by weak job markets, such as the one we had after the recent Great Recession. If the Rate of New Entrepreneurs goes up but the Opportunity Share of New Entrepreneurs is low, we can see that many new entrepreneurs are starting businesses coming out of unemployment, and arguably started their companies largely out of necessity.
- Data based on the Current Population Survey jointly produced by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics.
- What the number means:
  - For example, the United States Opportunity Share of New Entrepreneurs was 84 percent in the 2016 Index. That means that approximately eight out of every ten new entrepreneurs in this year started their businesses coming out of another job, school, or other labor market states. Meanwhile, two out of ten started their businesses directly coming out of unemployment.

The initial labor market status is defined in the first survey month. Rate of New Entrepreneurs is measured in the second (or following) survey month.

Component C: Startup Density

The Startup Density component of the Kauffman Index of Startup Activity uses U.S. Census Bureau data from the Business Dynamics Statistics, and it measures the number of new employer firms normalized by the employer business population of a given area. We define startups here as employer firms that are younger than one year old, and we divide the number of startups in a region by the number of active employer businesses. The Startup Density rate is per 1,000 employer businesses in the area. Our definition here largely is based on the entrepreneurship density measure suggested by our Kauffman Foundation colleagues Stangler and Bell-Masterson (2015) in their Measuring an Entrepreneurial Ecosystem paper.

Calculating the Startup Activity Index

The Kauffman Index of Startup Activity provides a broad index measure of business startup activity in the United States. It is an equally weighted index of three normalized measures of startup activity. The three component measures of the Startup Activity Index are: i) the Rate of New Entrepreneurs among the U.S. adult population, ii) the Opportunity Share of New Entrepreneurs, which captures the percentage of new entrepreneurs primarily driven by "opportunity" vs. by "necessity," and iii) the Startup Density (new employer businesses less than one year old, normalized by population).

Each of these three measures is normalized by subtracting the mean and dividing by the standard deviation for that measure (i.e., creating a z-score for each variable). This creates a comparable scale for including the three measures in the Startup Activity Index. We use national annual estimates from 1996 to the latest year available (2015) to calculate the mean and standard deviation for each of the CPS-based components. Similarly, we use national annual numbers from 1994 to the latest year available (2013) to calculate the mean and standard deviation for the BDS-based component of the Index. The same normalization method is used for all three geographic levels—national, state, and metropolitan area—for comparability and consistency over time.

The components we use for the national-level Startup Activity Index are all annual numbers. The Rate of New Entrepreneurs covers years from 1996 to the latest year available (2015). The Opportunity Share of New Entrepreneurs covers years from 1996 to the latest year available (2015). The Startup Density covers years from 1994 to the latest year available (2013).

The Rate of New Entrepreneurs and the Opportunity Share of New Entrepreneurs components of the state-level Startup Activity Index are calculated on three-year moving averages with the same yearly coverage as the national-level numbers. The reason we do three-year moving averages on the sample-based CPS measures is to reduce sampling issues. Because these are three-year moving averages with annual estimates starting in 1996, the first year for which three-year moving averages are available is 1998. The Startup Density component of the Index is presented yearly, from 1994 to the latest year available (2013).

For the metropolitan-area level Startup Activity Index, we present the Rate of New Entrepreneurs component on a three-year moving average from 2008 to the latest year available (2015). Because these are three-year moving averages, annual estimates are first calculated in 2006.

Startup Density

- Number of startup firms by total employer firm population.
- Startup businesses here are defined as employer firms less than one year old employing at least one person besides the owner. All industries are included on this measure.
- Measures the number of new employer startup businesses normalized by the employer firm population of an area. Because companies captured by this indicator have employees, they tend to be at a more advanced stage than are the companies in the Rate of New Entrepreneurs measure.
- Data based on the U.S. Census's Business Dynamics Statistics.
- What the number means:
  - For example, the 2016 Index Startup Density for the United States was 80.4 per 1,000 businesses. That means that, for every 1,000 employer businesses in the United States, there were 80.4 employer startup firms that were less than one year old in this year.

The Opportunity Share of New Entrepreneurs component of the Startup Activity Index is presented on five-year moving averages, starting in 2010 and going up to the latest year available (2015). Annual estimates used to calculate the moving average start in 2006. Again, the reason behind presenting moving averages is to reduce sampling issues. The Startup Density component of the Index is presented yearly, from 1994 to the latest year available (2013).

Data Sources and Component Measures

Data Sources

In this section, we discuss the underlying data sources used to calculate each of the components of the Startup Activity Index.

Rate of New Entrepreneurs and Opportunity Share of New Entrepreneurs

To calculate the Rate of New Entrepreneurs and the Opportunity Share of New Entrepreneurs, the underlying dataset used is the basic monthly files of the Current Population Survey. These surveys, conducted monthly by the U.S. Census Bureau and the Bureau of Labor Statistics, represent the entire U.S. population and contain observations for more than 130,000 people each month. By linking the CPS files over time, longitudinal data are created, allowing for the examination of the Rate of New Entrepreneurs. Combining the monthly files creates a sample size of roughly 700,000 adults ages twenty to sixty-four each year.

Households in the CPS are interviewed each month over a four-month period. Eight months later, they are re-interviewed in each month of a second four-month period. Thus, individuals who are interviewed in January, February, March, and April of one year are interviewed again in January, February, March, and April of the following year. The CPS rotation pattern makes it possible to match information on individuals monthly and, therefore, to create two-month panel data for up to 75 percent of all CPS respondents. To match these data, the household and individual identifiers provided by the CPS are used. False matches are removed by comparing race, sex, and age codes from the two months. After removing all non-unique matches, the underlying CPS data are checked extensively for coding errors and other problems.

Monthly match rates generally are between 94 percent and 96 percent (see Fairlie 2005). Household moves are the primary reason for non-matching. A somewhat non-random sample (mainly geographic movers) will, therefore, be lost due to the matching routine. Moves do not appear to create a serious problem for month-to-month matches, however, because the observable characteristics of the original sample and the matched sample are very similar (see Fairlie 2005).

Startup Density

We use two types of datasets to calculate Startup Density: a firm-level dataset and a population dataset.

For the firm-level dataset, we use the U.S. Census Bureau's Business Dynamics Statistics (BDS), which is constructed using administrative payroll tax records from the Internal Revenue Service (IRS). The BDS data present, among other things, numbers of firms tabulated by age and by geography (national, state, and metropolitan area). We make use of that data to calculate the raw number of employer firms younger than one year old by geographic levels. We then normalize this number by employer business population to arrive at the Startup Density of an area. In the 2015 Index, an alternative measurement for Startup Density had normalized by population from the Bureau of Economic Analysis. The updated normalization method allows for easier calculation because of matching location definitions without meaningful change in the spirit of the measurement.

Standard Errors and Confidence Intervals

Rate of New Entrepreneurs and Opportunity Share of New Entrepreneurs

The analysis of Rate of New Entrepreneurs by state includes confidence intervals that indicate confidence bands of approximately 0.15 percent around the Rate of New Entrepreneurs. While larger states have smaller confidence bands, the smallest states have larger confidence bands of approximately 0.20 percent. Oversampling in the CPS ensures that these small states have sample sizes of at least 5,000 observations and, therefore, provides a minimum level of precision.

The standard errors used to create the confidence intervals reported here may understate the true variability in the state estimates. Both stratification of the sample and the raking procedure (post-stratification) will reduce the variance of CPS estimates (Polivka 2000 and Train, Cahoon, and Maken 1978). On the other hand, the CPS clustering (i.e., nearby houses on the same block and multiple household members) leads to a larger sampling variance than would have been obtained from simple random sampling. It appears as though the latter effect dominates in the CPS, and treating the CPS as

random generally understates standard errors (Polivka 2000). National unemployment rate estimates indicate that treating the CPS as a random sample leads to an understatement of the variance of the unemployment rate by 23 percent. Another problem associated with the estimates reported here is that multiple observations (up to three) may occur for the same individual.

All of the reported confidence intervals should be considered approximate, as the actual confidence intervals may be slightly larger. The complete correction for the standard errors and confidence intervals involves obtaining confidential replicate weights from the BLS and employing sophisticated statistical procedures. Corrections for the possibility of multiple observations per person, which may create the largest bias in standard errors, are made using statistical survey procedures for all reported confidence intervals. It is important to note, however, that the estimates of the Rate of New Entrepreneurs are not subject to any of these problems. By using the sample weights provided by the CPS, all estimates of the Rate of New Entrepreneurs are correct.

Startup Density

Because the BDS is based on administrative data covering the overall employer business population, sampling concerns like standard errors and confidence intervals are irrelevant. Nonetheless, nonsampling errors could still occur. These could be caused, for example, by data entry issues with the IRS payroll tax records or by businesses submitting incorrect employment data to the IRS. However, these are probably randomly distributed and are unlikely to cause significant biases in the data. Please see Jarmin and Miranda (2002) for a complete discussion of potential complications on the dataset caused by changes in the administrative data on which the BDS is based.

Advantages over Other Possible Measures of Entrepreneurship

The Kauffman Index of Startup Activity has several advantages over other possible measures of entrepreneurship based on household or business-level data. We chose to use two distinct datasets: one based on individuals (CPS) and another one based on businesses (BDS). This allows us to study both entrepreneurs and the startups they create. These datasets have complementary strengths that make this Index a robust measure of startup activity.

Rate of New Entrepreneurs and Opportunity Share of New Entrepreneurs

The Rate of New Entrepreneurs and Opportunity Share of New Entrepreneurs components of the Startup Activity Index are based on the CPS, and this dataset provides four prominent advantages as an early and broad measure of startup activity. First, the CPS data are available only a couple of months after the end of the year, whereas even relatively timely data such as the American Community Survey (ACS) take more than a year to be released. Second, these components of the Startup Activity Index include all types of business activities (employers, non-employers, unincorporated, and incorporated businesses), but do not include small-scale side business activities such as consulting and casual businesses (because only the main job activity is recorded, and the individual must devote fifteen or more hours a week to working in the business). Third, the panel data created from matching consecutive months of the CPS allow for a dynamic measure of entrepreneurship, whereas most datasets only allow for a static measure of business ownership (e.g., ACS). Fourth, the CPS data include detailed information on demographic characteristics of the owner, whereas most business-level datasets contain no information on the owner (e.g., employer and non-employer data).

It is worth mentioning that the CPS components of the Kauffman Index of Startup Activity also differ from another entrepreneurship measure that may, on a first glance, look similar: the Global Entrepreneurship Monitor's Total early-stage Entrepreneurial Activity (TEA). The TEA captures the percentage of the age eighteen-to-sixty-four population who currently are nascent entrepreneurs (i.e., individuals who are actively involved in setting up businesses) or who are currently owner-managers of new businesses (i.e., businesses with no payments to owners or employees for more than forty-two months). The nascent entrepreneurs captured in the TEA who are still in the startup phase of business creation are not necessarily captured in the Rate of New Entrepreneurs because they may not be working on the new business for fifteen hours or more per week. The CPS components of the Kauffman Index of Startup Activity also differ from the TEA in that, because they are based on panel data, they capture entrepreneurship at the point in time when the business is created. In addition, the Global Entrepreneurship Monitor (GEM) measures in the United States use a much smaller sample, allowing for significant estimation challenges.

Startup Density

The Startup Density component of the Startup Activity Index, based on the BDS, presents four main advantages compared to other business-level datasets. First, it is based on administrative data covering the overall employer business population. As such, it has no potential sampling issues. Second, it has detailed coverage across all levels of geography, including metropolitan areas. Third, it provides firm-level data, rather than just establishment-level data. This is an important feature because new establishments may show another location of an existing firm, rather than an actual new business. Fourth, it provides detailed age breakdown of firms, allowing us to clearly identify new and young firms.

A dataset we use that is similar to the BDS data is the Business Employment Dynamics product from the Bureau of Labor Statistics. We chose not to use it for this report because of two distinct advantages we see the BDS having over the BED. First, the BDS tracks firm-level data, as opposed to the establishment-level data tracked by the BED. Second, the BDS has data available at the metropolitan level, while the BED does not.

Because the BED tracks establishments rather than firms, the numbers from the BDS are different than the ones on the BED. Nonetheless, the trends on the two datasets move largely in tandem, and usually point in the same direction.

REFERENCES

Bureau of Labor Statistics. 2015. "Table: Private sector establishment births and deaths, seasonally adjusted," *Business Employment Dynamics (BED)*, http://www.bls.gov/news.release/cewbd.t08.htm.

Bureau of Labor Statistics. 2015. *Labor Force Statistics from the Current Population Survey (CPS)*, http://www.bls.gov/cps/.

Fairlie, Robert W. 2014. *Kauffman Index of Entrepreneurial Activity, 1996–2013*, Kansas City: Ewing Marion Kauffman Foundation.

Fairlie, Robert W. 2013. *Kauffman Index of Entrepreneurial Activity, 1996–2012*, Kansas City: Ewing Marion Kauffman Foundation.

Fairlie, Robert W. 2012. *Kauffman Index of Entrepreneurial Activity by Veteran Status, 1996–2011*, Kansas City: Ewing Marion Kauffman Foundation.

Fairlie, Robert W. 2011. "Entrepreneurship, Economic Conditions, and the Great Recession," *Journal of Economics and Management Strategy*, 22(2): 207–231.

Fairlie, Robert W. 2006. *Kauffman Index of Entrepreneurial Activity, 1996–2005*, Kansas City: Ewing Marion Kauffman Foundation.

Fairlie, Robert W. 2005. *Kauffman Index of Entrepreneurial Activity, 1996–2004*, Kansas City: Ewing Marion Kauffman Foundation.

Feld, Brad. 2012. *Startup communities: Building an entrepreneurial ecosystem in your city*. Hoboken, NJ: John Wiley & Sons.

Global Entrepreneurship Monitor Consortium. 2015. *Global Entrepreneurship Monitor (GEM)*, http://www.gemconsortium.org/What-is-GEM.

Jarmin, Ron S., and Miranda, Javier. 2002. *The Longitudinal Business Database*, Washington, D.C.: U.S. Census Bureau.

Karabell, Zachary. 2014. *The Leading Indicators: A Short History of the Numbers That Rule Our World*. New York, NY: Simon & Schuster.

Polivka, Anne E. 2000. *Using Earnings Data From the Monthly Current Population Survey*, Washington, D.C.: Bureau of Labor Statistics.

Stangler, Dane, and Bell-Masterson, Jordan. 2015. *Measuring an Entrepreneurial Ecosystem*, Kansas City: Ewing Marion Kauffman Foundation.

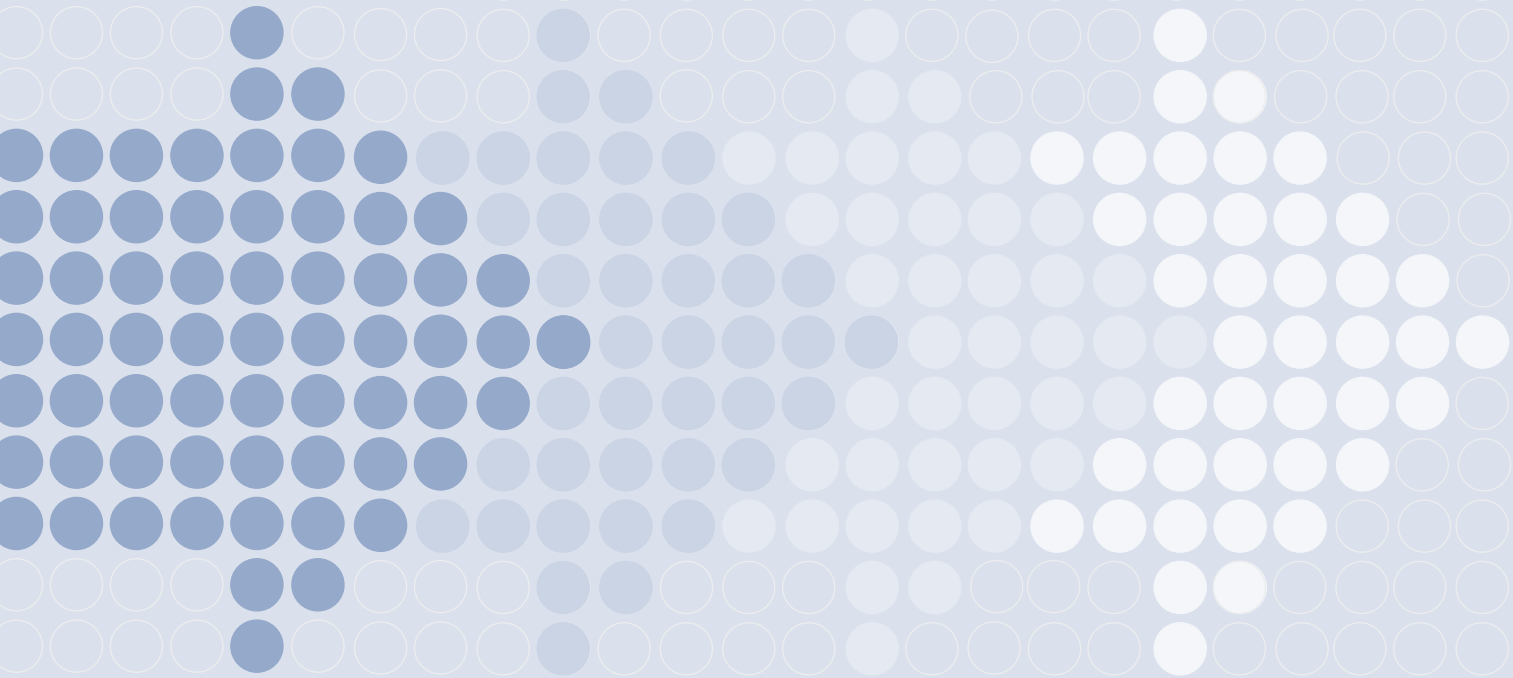
Stangler, Dane. 2009. *The Economic Future just Happened*, Kansas City: Ewing Marion Kauffman Foundation.

Train, George, Cahoon, Lawrence, and Makens, Paul. 1978. "The Current Population Survey Variances, Inter-Relationships, and Design Effects," *Proceedings of the Section on Survey Research Methods*, American Statistical Association, Washington, D.C., 443–448.

U.S. Census Bureau. 2014. *American Community Survey (ACS)*, http://www.census.gov/acs/www/.

U.S. Census Bureau. 2014. *Business Dynamics Statistics (BDS)*, http://www.census.gov/ces/dataproducts/bds/overview.html.

U.S. Census Bureau. 2014. *Survey of Business Owners (SBO)*, http://www.census.gov/ces/dataproducts/bds/overview.html.



This is the 2016 Startup Activity release version of the Kauffman Index.
For past Kauffman Index releases, please see www.kauffmanindex.org.

Ewing Marion
KAUFFMAN
Foundation

Fostering
economic independence
by advancing
education and entrepreneurship

4801 ROCKHILL ROAD
KANSAS CITY, MISSOURI 64110
816-932-1000
www.kauffman.org